
DONATED BY
THE LARRY ZIM
WORLD'S • FAIR • COLLECTION

+ NaCl - GGL8P1 NaCl
- CH4 = Vacf

THE

INDVSTRIAL ARTS
OF THE
NINETEENTH CENTVRY
AT THE
GREAT EXHIBITION
MDCCCLI

BY DIGBY WYATT

VOL II

DAY AND SON
LITHOGRAPHERS TO THE QVEEN

F. BEDFORD DEL ET LITH.

LONDON PUBLISHED MARCH 15TH 1853, BY DAY & SON, LITHOGRAPHERS TO THE QUEEN 17 GATE STREET, LINCOLNS INN FIELDS.

M. DIGBY WYATT DIREXT.

A TABLE AND OTHER OBJECTS BY ELKINGTON & MASON OF BIRMINGHAM

LONDON, PRINTED AND PUBLISHED BY DAY & SON, LITHOGRAPHERS TO THE QUEEN.

PLATE LXXIX.

GROUP OF OBJECTS EXECUTED IN ELECTROTYPE, BY ELKINGTON AND MASON OF BIRMINGHAM.

This extensive establishment may be said to owe its existence to the discovery of electroplating, a process by which a large number of important works have been already produced. The objects which we have selected to form the subject of the present plate are partly of original design and partly adapted copies from the antique. The top of the table, executed for His Royal Highness the Prince Albert, is an electrotype reproduction of a salver of fine workmanship, preserved in the Museum of the Louvre: the copy was obtained for Mr. Henry Elkington, under the direction of the Chevalier de Schlick. The subjects on the plate consist of a series of allegorical representations, divided by arabesques. In another copy of this elegant work in the Museum Ferdinandeum at Innspruck, some inscriptions are added to explain the subjects of the bas-reliefs.

The centre is occupied by an embodiment of the virtue of Temperance, presiding, as it were, over all things, typified by the four elements, which are represented in the bas-reliefs of the inner ring. In the eight subjects of the outer ring the artist has introduced representations of as many branches of science and art, which are designated as Minerva, Astrologia, Geometrica, Arithmetica, Musica, Rhetorica, Dialectica, Grammatica. Each bas-relief consists of a female figure, surrounded by various emblems explanatory of the meaning of the subject,—though it must be admitted that, in some cases, the explanation is scarcely sufficient to remove all doubt as to the intention of the designer, whose name is given us by an inscription on the original plate, which runs thus,—"Seri pebat Gasper Enderlein." The stand, by which this plate has been converted into a table, was designed by Mr. George Staunton, an artist in the employ of Mr. H. Elkington: the style of the original plate is well carried out in this addition, and it certainly reflects considerable credit upon the designer, who, we understand, was educated in the Birmingham School of Design. In the composition of the elegant silver chased salt-cellar, the artist seems to have intended to remind us of the briny wave whence the contents of his vessel were to be derived. The foot is formed by sea-horses, restrained by some young Amphitritons, who also support the bowl, which is in the form of a shell: the whole is surmounted by a figure of Neptune as a boy. We are not now accustomed to see so much care bestowed upon this article of table furniture, but our readers will recollect that formerly "the salt" formed the boundary of the honourable portion of the great man's table, and the salt-cellar was an article of most costly and elaborate workmanship, far surpassing that even of the one now represented.

The history of some of the most important inventions shows that their first discovery is most commonly the result of an accidental observation, laid hold of and reasoned upon by a philosophic mind. Thus the art of electroplating, which has now risen to such great importance, originated in the observation that a deposit precipitated by the action of the galvanic battery in a cell containing sulphate of copper was the exact copy of the interior of that cell. The original invention of the electrotyping process has been claimed by two persons,—by Mr. Thomas Spencer of Liverpool, and by Professor Jacobi of St. Petersburg; and their rival claims were laid before the Chemical Section of the British Association for the Promotion of Science, at a meeting of that body in Glasgow. It appears that, in the year 1838, Mr. Spencer, who was a man of science as well as a picture-frame maker, was led to observe many points of similarity between chemical and

electrical forces. He prosecuted the interesting inquiry in a series of ingenious experiments, in the course of which he discovered that, under certain circumstances of galvanic action, the metallic portion of a solution of sulphate of copper was separated from the acid, and could be deposited atom by atom upon the surface of a copper plate, on which it at first formed a film, and ultimately a layer. The surface of this layer, when removed, was found to be a perfect reverse of the original plate. As soon as the discovery was made known, under the name of the *electrotype*, its obvious utility for multiplying impressions of medals and similar objects rendered it extremely popular, and the public were seized with a perfect mania for taking electrotype impressions of every possible object. It was not until some months after the publication of this discovery by Mr. Spencer that Professor Jacobi, having obtained the same results at which the English inventor had previously arrived, claimed for himself the exclusive merit of the invention. It was natural that the prejudices of the technical body before whom, as we have stated, their rival claims were preferred, should be on the side of the learned Professor, having known rank and position in the scientific world, rather than on that of a simple tradesman of Liverpool, whose name was then heard of for the first time beyond the limits of his own immediate sphere of action. The men of science composing the jury might also consider it derogatory to their order that so important a discovery should have escaped even the suspicions of professional chemists, and originated with a humble amateur. The evidence, however, which Mr. Spencer was able to produce was so conclusive, that the learned Professor was obliged to cede the honour of priority to his rival; and the decision of the Chemical Section was, that both gentlemen had independently arrived at the same result, but that, in point of time, the invention of Mr. Spencer was unquestionably antecedent to that of Professor Jacobi.

Messrs. Elkington appear to have taken up the invention very soon after this adjustment of conflicting interests, as we find that, in the year 1840, they took out a patent for electroplating, both in England and France; and though it was most severely contested in the latter country, and was tried in a variety of forms before all the courts of law in succession, the right of the patentees was finally secured. Since that time the importance of the electroplating process as a branch of industry has increased so rapidly, that the patentees alone employ upwards of five hundred workpeople, and, necessarily, some of the first designers of the day; besides which, there are about thirty other manufacturers licensed to use the process in England, and it is also extensively employed in France.

The capabilities of the electro-deposit processes, for the reproduction of the most elaborate works of sculpture, have been greatly extended and increased in value and precision by the improvements which have from time to time been made in the methods employed in obtaining perfect casts, with a considerable amount of undercutting, by means of gelatine moulds. While, however, this facility offers great advantages, it, on the other hand, presents a means liable to serious abuse. So great is the temptation to copy, that it may appear at first sight scarcely necessary any longer to invent. This view is, however, exceedingly short-sighted; since, unless an independence of national design is preserved, that which judiciously employed might tend materially to the advancement of Industrial Art in this country, will be made a means only of enfeebling those very powers it is most essential for the progress of the nation in manufacture firmly and adequately to sustain. It is ever to be remembered that Thought stands to Art in the relation of soul to body; that the country whose productions, however lively they may be, are dependent on other than original and native conception, can lay claim only to a dead, material existence; and that the *vitality* of Art is its loftiest quality. Exquisitely beautiful as many of our reproductions of the choicest gems of Greece may be in these days, they can be only "Greece, but *living* Greece no more."

In tracing, therefore, the progress of Messrs. Elkington, it is satisfactory to find that from year to year they have been endeavouring to emancipate themselves from the thraldom of copying only, and adding fresh graces and new and native beauties to the objects upon which their producing energy is concentrated. At the Industrial Exhibition at Birmingham in 1849, their large display of articles served to show how earnestly they were working out their patent; and the same result was still more apparent in their contributions to the Great Exhibition of all Nations.

In a further notice of the productions of this firm, we shall take occasion to describe the processes by which magnificent works, formerly obtainable only by the most wealthy, are now being brought within the reach of those whose means would not otherwise allow them to gratify their taste for such objects.

R. N. HUMPHREYS, DEL.

M. DIGBY WYATT, DIREXT.

F. BEDFORD, LITH.

ALBANIAN COSTUME EMBROIDERY.

LONDON, PRINTED AND PUBLISHED JULY 15TH 1852 BY DAY & SON LITHOGRAPHERS TO THE QUEEN.

PLATE LXXX.

ALBANIAN EMBROIDERY.

Having, in our notice of Plate LXXVI., examined the character of the modern costume of Greece and Albania, we shall, on the present occasion, advert to the history of costume-embroidery from the earliest foundation of the Greek Empire.

The love of magnificence and of elaborate, though semi-barbaric art, for which Constantine the Great was so remarkable, unquestionably afforded a powerful stimulus to the labours of those Roman artists whom he carried with him to his new capital, to supply his personal wants, as well as those of his newly-founded Church. In the earliest diptychs we find* indications of embroidery on portions of the garments represented in the consular portraits. The most ancient manuscripts and mosaics afford still clearer evidence as to the early-developed partiality of the Greeks for similar rich decorations. Their intercourse with Persia and the East no doubt fostered this taste, since the inhabitants of those regions had long been famed for the magnificence of their costume, and the skill with which their precious cloths and hangings were executed in the loom and adorned by the needle. It is reasonable, therefore, to find in the earliest representations of Greek embroidery a decidedly Oriental character; and in proportion as the power of the Saracenic races increased, so do we more and more clearly recognise the influence of the arts of design which they practised reacting upon the Byzantines, from whom the first and leading elements of those arts had been derived.

Ciampini† displays great learning in tracing the retention, by the Greeks of the Lower Empire, of the practice of their classic ancestors of embroidering inscriptions on the hems of their garments. He cites especially a homily on the subject of the Rich Man and Lazarus, by St. Asterius, who exclaims against the custom of embroidering sacred and profane histories on vestments. Anastasius, in his life of Leo IV. (who became Pope A.D. 847), describes a veil which hung about his altar as woven with gold, and glittering all over with pearls; having, on the right and left hand, subjects enriched with gems, with little gold cirelets round the whole, on which was inscribed the name of the donor. A careful examination of several of the earliest Greek mosaics enabled Ciampini to collect, from the representations of similar embroideries which they furnish to the antiquary, a series of interesting monograms and inscriptions, which he has given in his work. There can be no doubt that the Greeks long continued to execute such embroideries, which were generally adopted in Italy as orphreys and edgings for robes and vestments; for we find in the pictures of the later Greek masters, and of the early Siennese, Neapolitan, and Venetian schools, frequent representations of figures clad in plain and enriched stuffs, having almost invariably edgings worked in gold, and exhibiting sometimes Greek, sometimes Latin, and sometimes Cufie inscriptions, together with ornaments displaying a decided analogy with those forms which are of most frequent oecurrence in Byzantine mosaics, enamels, and manuscripts.

In a previous article (Plate XX.) we quoted the observation of St. John Chrysostom, that in his time all admiration was reserved for the works of the goldsmith and the weaver. Of sumptuous robes of Greek workmanship the most precious, and indeed the only perfect, specimen known to be in existence, is the celebrated Cappa di San Leone. The Dalmatica, as it is otherwise called, is preserved in the sacristy of St. Peter's at Rome, and is covered with sacred subjeets, embroidered in gold and silver: and although the style of the representations is dry and lifeless, it must be considered as a fair specimen of the technical execution

* Vide Gorius, passim.

† "Vetera Monimenta, musiva opera illustrantur. Pars prima." Folio. Rome, 1690, p. 92.

of such work at the period of its fabrication, about the twelfth century. Dr. Kugler* considers it to be of undoubted Greek workmanship from Constantinople. It is very interesting, as showing the extreme richness of composition employed in such embroideries. We are informed by the Rev. Mr. Hartshorne† that "the work is laid upon a foundation of deep blue silk, having four different subjects on the shoulders, behind and in front, exhibiting, although taken from different actions, the glorification of the body of our Lord. The whole has been carefully wrought with gold tambour and silk; and the numerous figures—as many as fifty-four—surrounding the Redeemer, who sits enthroned on a rainbow in the centre, display simplicity and gracefulness of design. The field of the vestment is powdered with flowers and crosses of gold and silver, having the bottom enriched with a running floriated pattern. It has also a representation of Paradise, wherein the flowers, carried by tigers of gold, are of emerald green, turquoise blue, and flame colour. Crosses of silver cantoned with tears of gold, and of gold cantoned with tears of silver alternately, are inserted in the flowing foliage at the edge. Other crosses within circles are also placed after the same rule; when of gold, in medallions of silver; and when of silver, in the reverse order."

"I do not apprehend," says Lord Lindsay, in his "History of Christian Art," "your being disappointed with the Dalmatica di San Leone, or your dissenting from my conclusion, that a master—a Michael Angelo, I would almost say—then flourished at Byzantium. It was in this Dalmatica—then *semée* all over with pearls, and glittering in freshness—that Cola di Rienzi robed himself over his armour in the sacristy of St. Peter's, and thence ascended to the palace of the Popes, after the manner of the Cæsars, with sounding trumpets and his horsemen following him,—his truncheon in his hand, and his crown on his head,—'terribile e fantastice,' as his biographer describes him,—to wait upon the legate."

The sacristy of the church of St. Apollinaris in Classe, in the exarchate of Ravenna, possesses some fragments of a very ancient embroidered chasuble, on the orphrey or border of which were figures of saints and bishops, with the names of each in small shields. The fabric of these interesting relics is of silver and silk,—a manufacture which is of later introduction for the material of church vestments than gold. According to Salmasius, silver tissue was not made or used in churches till the times of the last Byzantine emperors. From this circumstance we may form some conclusion as to the date of this chasuble, which may be assumed as representing the last stage of Greek embroidery.

We shall hereafter take an opportunity of tracing the very important influence which, as we conceive, the great popularity of the style of workmanship, adopted in the costume of the Byzantine court, effected throughout nearly the whole extent of the habitable globe.

* "Handbuch der Kunst-Geshichte."

† "English Mediæval Embroidery," p. 62. Parker, London and Oxford.

PLATE LXXXI.

FLOWER-STAND,

MODELLED BY THE BARON MAROCHETTI, AND EXECUTED BY MINTON OF STOKE-UPON-TRENT.

The ceramic art ranks among the most ancient and interesting of any, and presents an endless variety of products. The potter's wheel may, in fact, be regarded as one of the very earliest machines on record; and whilst the oldest nations of the classic world—Egypt, Greece, and Etruria—excelled in its application to purposes of use and ornament, so our increasing knowledge of Oriental, and even barbarous regions, proves its early and universal popularity.

We have already adverted to the productions of mediæval Italy, as exemplified in the exquisite Majolica and Luca della Robbia wares; and to the successful imitations of those works by Messrs. Minton and Co. We have also illustrated the magnificent porcelain of Sèvres; and we now propose to lay before our readers some remarks on the history of ceramic art in England, in connexion with the accompanying and subsequent engravings.

As we find that even the aboriginal inhabitants of America possess a rude imitation of the potter's wheel, so it appears that the first colonists of Britain applied the plastic clay which they met with in this island to the manufacture of domestic and other vessels. Strabo asserts that the Britons of the Scilly Isles obtained their pottery in barter; but from the numerous fragments of earthenware discovered in barrows of an age anterior to the Roman dominion, it is evident that the art was then extensively practised in Britain. Sir Richard Colt Hoare* engraves many fine specimens of these productions, which he classes under three heads,—the large sepulchral or funeral urn; the drinking-cup, usually found with skeletons, and holding about a quart; and the smaller incense-cup, or *thuribulum*. Some of these are richly, though rudely, ornamented; but there is little variety in their forms or patterns. Their materials are coarse, and they are so imperfectly baked, either in the sun or the fire of the funeral pile, as often to shiver to pieces on exposure to the atmosphere. The patterns appear to have been worked by hand with a pointed instrument.

From the infinite number of fragments and perfect vessels discovered in all parts of the kingdom, it is obvious that fictile wares must have been in universal demand during the five centuries of Roman rule in Britain. In London, York, Exeter, Colchester, and all the great Roman stations, pottery has been and is almost daily found, in the greatest variety and abundance; and there is not a county in England which has not furnished proofs of its popularity. Kent, especially, is rich in these interesting remains; and the discoveries at Richborough alone (which have been so ably illustrated by Mr. C. Roach Smith) brought to light hundreds of varieties of the plainer sorts of pottery.

Unlike the British specimens, those of the Roman era are remarkable for their beautifully-moulded forms, and for the taste and elegance of the patterns and figures with which they are decorated. They may be generally classed as glazed and unglazed, and are found to have been made of differently-coloured earths,—red, brown, light yellow or straw-coloured, drab, fawn-coloured, and white. The earthen vessels made in the Roman era

* "Ancient Wilts," Introduction, p. 10, 26, 66, 85.

comprised urns, vases, pateræ, lamps, mortaria, amphoræ or wine-jars, and a great variety of similar articles. The most ordinary kind are of a red colour, as also is the thin transparent glaze which covers some of them.

The most remarkable and beautiful variety of Roman earthenware found in Britain is that commonly termed Samian ware, from its resemblance to that for which the isle of Samos acquired a great celebrity almost a century before the Christian era. This so-called "Samian ware" is also extensively met with in France, in Germany, and in Spain, and was evidently held in high esteem by the Roman colonists of northern Europe. Mr. C. R. Smith dwells especially upon the relics of this description found at Richborough and in the neighbourhood. "This," he says, "is distinguished from all other kinds of ancient pottery discovered in England and on the Continent, by a red or coral-coloured glaze, covering uniformly the internal and external surfaces; the body of the material being of a paler red, of compact texture, slightly porous, and sonorous when struck. The colouring matter was imparted to these vessels by oxides of lead and iron." Immense quantities of this species of earthenware have been discovered on the site of Roman London; and for nearly a century past so many fragments of it have been dredged up by fishermen, on the coast between Whitstable and Margate, that it has been suggested, either that a ship importing such vessels must have been wrecked there, or that an ancient pottery on that site has been submerged by the sea: the latter opinion being equally probable with the former. Many traces of extensive Roman potteries and kilns, or furnaces, are found in different parts of England; as at Binchester; at Caistor; at Middlethorpe, in Yorkshire; at Potter-Heigham, Norfolk; in Holt Forest; and, as it is said, in Staffordshire, in the locality now so familiarly known as "the Potteries."

One interesting feature in Roman pottery is the fact that many vessels, both of the Samian and other kinds, have impressed upon them the names of their makers.* Upwards of three hundred potters of the Roman era are thus known to us, many of them being evidently Gauls and Germans. The names of the same workmen have been, in several instances, found on fragments discovered both in France and in London; thirty-nine different names appear on the Richborough remains alone; and, partly from the evidence furnished by these "potters' marks," Mr. C. R. Smith arrives at the conclusion that the Samian ware was manufactured in the South of France and on the Rhine. The excellence of Roman bricks, tiles, and tesseræ, and their application to pavements and constructive purposes, is proverbial.

During the middle ages, the old English notoriety for deep potations caused a general demand for drinking-vessels of the greatest variety. Potters, among other craftsmen, are mentioned in the "Doomsday Survey." A common porous earthenware, and an inferior kind of glazed ware, were made throughout this period: the use of encaustic tiles of great beauty and admirable workmanship shows that the artistic capability was not extinct, and interesting relics of the pottery of our early ancestors have been found at York, Lincoln, and elsewhere.† In Mr. Hudson Turner's volume on Ancient Domestic Architecture, engravings are given of the earthen water-vessels, oil-jars, pottage-pots, &c., of the thirteenth century, from manuscripts of that period; but, as the author observes, plates and dishes were then made of other materials; and, in fact, until the sixteenth century, the ceramic art was not at all commonly practised in England.

An almost infinite variety of other materials were used as substitutes for earthenware; and with a brief reference to some of these we must close the present notice. Wooden trenchers date from the Anglo-Saxon era, and the elaborately-carved peg-tankard, belonging now to Lord Arundel of Wardour, and formerly to the Abbey of Glastonbury, is ascribed to a period anterior to the Norman Conquest.‡ The horns of the ox and other animals were formed into rude drinking-vessels from the earliest ages; and whilst gourds, cocoa-nuts, leather, glass, crystal, alabaster, and even marble ("marmoreus," probably agate), were occasionally employed for a like purpose; it is evident that the greater majority of such vessels were of metal. Without citing the innumerable examples of old English plate which still abound, we may allude to the inventory of the wardrobe of Henry V., which included "*pottes jaloners* (or gallon-pots), *d'argentz*, covertz, signez ovec libard en les handelles." In the year 1428, "two hundred plattes, dishes, saucers, and other vessels of *electrum*," were exported from England, free of duty, for the use of the King of Portugal; and to a very recent period pewter was extensively used for platters and other articles.

* M. Brongniart gives an engraving of one of the stamps used to produce these impressions.

† At the meeting of the Archæological Institute at Lincoln, in 1848, Mr. Arthur Trollope exhibited a large and curious collection of mediæval fictile manufactures, discovered in and near that city. This series comprised many specimens covered with a peculiar green glaze, which was extensively used; and also some rude stamps, used by the Lincoln potters of the fourteenth century, for impressing figures and devices on their productions. The age of these implements was clearly proved by the square head-dress of the reign of Edward III. on the figures.

‡ Pepys, in 1667, indulged in "a flaggon of ale and apples, drunk out of a wood cup, as a Christmas draught."


christus rex
est mecum

PLATE LXXXII.

JEWELLERY IN THE MEDIÆVAL STYLE.

MANUFACTURED BY HARDMAN OF BIRMINGHAM, FROM DESIGNS BY PUGIN.

It is a singular fact that the jewellery of the primæval inhabitants of our island is far more common than that of the Middle Ages. This is, however, accounted for by the custom which obtains among nearly all semi-civilised nations of burying the most valued ornaments with their defunct possessor; while, on the other hand, a piece of jewellery of the twelfth or thirteenth century would often be transmitted through so many successive generations that at last it would get broken by constant use, or so thoroughly worn out that the melting-pot could be its only possible destination.

Nearly the whole surface of Great Britain is more or less covered with conical heaps of earth, the successive burying-places of the Britons, Danes, and Saxons. During the present century many of these have been carefully examined, and a great quantity of the ornaments of the various nations brought to light. Thus, in the British barrows have been found torques, armillæ, and fibulæ, besides sundry necklaces composed of rudely-cut amber, or an inferior description of glass. The most important of such objects is the "dorch," or torque, consisting of several thick wires of gold twisted into a circle, generally about six or eight inches in diameter, with both ends terminating in hooks, by means of which they were fastened together. The torque was worn round the neck, and although we are sometimes told that its use was restricted to the chiefs, yet it is found in so many different metals that it is probable it was more common, and the material affords us an index of the wealth, instead of the rank, of the owner. As to the British fibulæ and armillæ, they are for the most part very rude; the latter are penannular, and end in two flat discs.

The Romano-British barrows present us with far more valuable contents. Although the description of ornaments are for the most part the same as those of the earlier period, we find many decided improvements. The rude series of raised lines with dots between them give place to imitations of classic foliage, and a great quantity of the articles are decorated with enamel. Whether the processes by which this was effected were known to the ancient Britons is still an open question, but it appears to have been the common property of the northern nations from a very early period. Most probably it was in the first instance but a rude attempt to copy the delicate cloisonné enamels of the East, of which these northern tribes had perhaps preserved some traditions during their long migrations from the shores of the Black Sea.

An almost endless variety of jewellery is found in the Saxon barrows, and some of the types of the fibulæ are, to say the least, exceedingly curious. Enamel is employed to a much greater extent than it was in the former period, and many ornaments are found decorated with what can only be considered as a substitute for the cloisonné work. It consists of a pattern worked into cells by strips of gold, into the interstices formed by the convolutions of which are forced thin pieces of ruby-coloured glass, often placed upon an engraved plate of gold or silver to throw up the colour.

The contemporary Irish and Scotch works (especially the former) exhibit much delicacy of manipulation in both damascening and enamelling. They are likewise curious, as presenting us with two or more colours in juxtaposition without any intermediate strip of metal, and the damascening will bear comparison with the later and more famed manufactures of Mossul.

The Irish fibula was generally penannular, with the ends merely enlarged.* The Anglo-Saxon, on the contrary, was usually of the disc shape, a type which continued in use for many years subsequent to the Conquest. Probably the most splendid example extant is that in the collection of the late Sir W. Hamilton, and now in the British Museum: it consists of one mass of filagree and cloisonné enamel. Both of these latter arts must have been known to the Anglo-Saxons before the ninth century, as they are employed with very considerable skill in Alfred's jewel, now in the Ashmolean Museum at Oxford. The almost unceasing communication with Rome which took place about that time furnishes us with a very satisfactory solution of the question of their origin.

Chefs-d'œuvre of this epoch are sufficiently numerous, but we can only find space to indicate Bishop Ahlstan's ring, with champlevé enamel; that of Ethelbert, with damascene work; the Hexham drinking-cup,† rich with stones and filagree; and the beautiful fibula‡ found in London in 1839.

We obtain but little information respecting the art during the reigns of the kings immediately after the Conquest, beyond the vague expressions of "lapides pretiosæ," set "opere subtilissimo," of the historians. There were no monumental effigies, and the earliest of any importance (those of Fontevraud) simply exhibit the general form of the regalia. Perhaps the best and almost unique specimen of English jewellery of this period (eleventh century) is the spoon§ used at the coronation of our kings, and now kept with articles of more equivocal reputation in the Tower of London.

During the Middle Ages, properly so called, the jewellery of both sexes underwent but little alteration, and an inspection of the prints in Stothard's and Hollis's Monumental Effigies, will give the reader a better idea of the ornaments of the various classes of society, from the eleventh to the sixteenth centuries, than pages of description.

From these and other sources we find that the bishop required a "mitra preciosa," a ring, a crozier, and an "ouch" or "morse," for the cope,—the latter a descendant of the old fibula. The episcopal rings are generally quite plain and set with stones, often of considerable value. The croziers of William of Wykeham and Bishop Fox are evidences of the care bestowed on this instrument; and fragments of the mitre of the former bishop, preserved at New College, Oxford, and the Limerick mitre, published in Shaw's "Dresses and Decorations," testify that the cost of the "mitra preciosa" must have been no small sum.

The knight possessed his cingulum, or military belt, consisting of square or circular pieces of jewellery affixed to a band of leather or velvet; these, and the mounting of the swords, must often have been of great value; for we read of the Black Prince pawning one of his swords, which was not redeemed at the time of his death; and another belonging to Henry V. was of sufficient value to procure the pardon of Sir Isambart d'Agincourt, who obtained it when he made that attack on the English baggage which cost the lives of several thousands of the bravest of his countrymen.

The girdle, or "ceinture," was worn by both sexes, and frequently dwindled down to a few brass knobs sewed upon coarse cloths; on the other hand, we find descriptions of girdles, the richness of which would be almost marvellous to modern ideas.

Another article, common to both sexes, was the "coronal," originally a thin band of gems and filagree to keep the long hair in its place; this was often worn over the helmet, as we see in the effigy of William de Valence, in Westminster Abbey. Afterwards, various leaves were added to it, when it became the coronet of the nobility, while the ladies gradually bent it downwards and formed it into a species of guard or border for the "dorelet," or "trésor d'or," a net-work of gold-wire with jewels (often pendent) at the intersections. This latter object was, perhaps, the most important of all the ladies' bijouterie, and many a "caul of pipes," as it was latterly described, had no doubt done duty for more than two centuries.

A great number of the rings of the Middle Ages have lately been published by the Archæological Societies; they appear to have been made in every conceivable shape, and are often engraved with short mottoes, in which case they were called posy-rings. Some are massive, like those of the classic ages, while others are enamelled or simply twisted; in fact, it would be an endless task to enumerate the varieties.‖

* The Tara brooch is a specimen of the usual type.

† Generally called a "bucket."

‡ See "Archæologia," vol. xxix.

§ See Shaw's "Dresses and Decorations" for a beautiful print of this spoon.

‖ The collections of Mr. Fitch of Norwich, and of Mr. Whincopp of Ipswich, are most interesting.

PUBLISHED BY

. MARQUETERIE ENAMELLED CLOTH AND LINOLEUM MANUFACTURERS BROADWOOD OF LONDON..

LONDON: PUBLISHED AS THE ACT DIRECTS BY B. T. BATSFORD 94 HIGH HOLBORN. MANUFACTURERS TO THE QUEEN.

PLATE LXXXIII.

ORNAMENTS FROM A GRAND PIANOFORTE,

BY MESSRS. BROADWOOD OF LONDON.

In our notice of Plate LIX. we traced the history of the pianoforte manufacture, from its first appearance in England to the period when the talents of Clementi as a musician, and the ability of manufacturers such as Tschudi, Stodart, Kirkman, Zumpe, and Broadwood, procured for that instrument the popularity which it has since constantly maintained. In the present article we shall pursue the subject by tracing those developements many of which have been introduced by the skill and energy of the Messrs. Broadwood.

The first notice of a "pianoforte," which occurs in the books of that firm, dates from the year 1771; and of a "grand pianoforte" from 1781. It is unfortunate, however, that the earliest ledgers of the Messrs. Broadwood have been lost, as they would, no doubt, have thrown considerable light on the history of the instrument. In order to afford some idea of the rapid progress which the pianoforte made in popularity, and of the extraordinary demand to which the Messrs. Broadwood have ministered, we may observe, that, between the years 1771 and 1851, no fewer than 103,750 pianos have been made by that firm alone; of which number 60,382 were made from 1824 to 1850, giving, during those years, an average of no less than $2236\frac{10}{27}$ per annum. The number of persons working at Messrs. Broadwood's factory at the taking of the census in 1851 was 573,—in addition to which many individuals were employed at their own homes. The total salaries and wages of the persons employed by the firm amounted, in the year 1850–51, to upwards of 48,000*l*.

Without the aid of numerous diagrams it would be impossible, in the limits of the present notice, to trace the details of the successive varieties of mechanism by which the grand pianoforte movement attained its present perfection. Simultaneously with improvements in the action of the instrument, numerous changes in its structure were introduced. In the old construction of the harpsichord, the wires were of such exceeding tenuity that the mere wooden framing of the case was sufficient to support the tension exerted by the tightening of the strings. In proportion as the wires of the pianoforte were increased in thickness, so as to ensure greater sonorosity, it became necessary to strengthen the framework to which they were attached; and for that purpose steel arches were introduced between the strings, to fasten them in their proper position. When we reflect that in the grand pianoforte of the present day the 225 strings or wires employed exert a strain of more than 20,000 lbs., drawing together the two ends of the framework, some idea may be formed of the precautions which must be taken to retain the several parts in their proper places, so that the necessary degree of tension may be uniformly given to the various strings.

So early as the year 1808 Messrs. Broadwood applied horizontal steel bars over the strings, the number varying from two to seven. In 1820 Messrs. Stodart patented a system of bracing, by means of hollow metal tension-bars applied over the strings, combined with a suspension-bar over the wrest plank. M. Erard, in the year 1824, patented a somewhat different system of horizontal metal bracing; and Messrs. Broadwood, in 1827, a third system, for the grand pianoforte, being a combination of the metal bars which they had already adopted, and which they had first applied to the square pianoforte in 1822.

Experience, however, shows, that all tension-bars are at best but make-shifts; and it is probable that the best mode of constructing a grand pianoforte would be so to strengthen the case as to supersede the bars altogether. Of late years the object of the Messrs. Broadwood has been to reduce their metal tension-bars to the lowest possible number; and to effect this they have given to several of them a cross section, so as to obtain greatly increased lateral stiffness.

As our readers may not all clearly appreciate the differences between the several varieties of pianofortes, it may be desirable to quote the following clear definitions of them, which are given by Mr. Dodd.* "1st. The *square* pianoforte has the strings horizontal, in a rectangular case, with two strings to each note, and a compass varying from five and a half to six and a half octaves. 2d. The *cottage* pianoforte has its strings arranged vertically, reaching nearly from the ground to a short distance above the level of the keys: the case is much shorter than in the square; there are two strings to each note; and the compass is generally six octaves. 3d. The *cabinet* pianoforte is much higher than any other, except the *upright grand*, a form not now manufactured; the strings, two to each note, are arranged vertically, but, unlike those in the cottage form, are elevated wholly above the level of the keys: in general the compass is six octaves, but the most finished instruments have a compass of six and a half. 4th. The *grand* pianoforte is longer than any other; it is wider at one end than the other, and, unlike those hitherto mentioned, has the keys at one end: the strings are horizontal, and the chief feature whereby the instrument is distinguished is that there are three strings to each note: the compass is always six octaves and a half, and there are thus upwards of two hundred and twenty strings. 5th. The *semi-grand* pianoforte is, as its name imports, a modification of the *grand;* it has the strings horizontal; its case somewhat resembles that of the grand, but it is shorter; has a compass of only six octaves; and has but two strings to a note. These are the five forms of pianofortes now made. They are not all of equal importance in a commercial point of view, for the *squares* generally made are twice as many in number as all the rest put together."

Many important changes have been made, not only in the substance and quality of the wires of the pianoforte, but in apportioning their lengths to the correct intervals of the scale. In the early pianos the wires for the lower notes were of brass, and those for the treble, of steel; a few of the bass notes being covered with plated copper-wire to increase their tone. In modern instruments steel-wire is generally used throughout; about an octave in the bass being closely lapped with unwashed copper-wire. We are told by a writer in the "Penny Cyclopædia," that the steel-wire now used is the manufacture of Mr. Webster, of Penns, near Birmingham, and is greatly superior to the once-famed German wire.

That peculiar property which distinguishes the tone of the pianoforte from that of the harpsichord (in which a regular jerk was given to the string by means of a jack) is much heightened by the introduction of pedals, which enable the player to increase or lower the intensity of the tone. The *forte-pedal* relieves the strings from the action of the damper, which would otherwise check their vibration; whilst the *piano-pedal,* in the grand pianoforte, acts by removing one of every three strings from the action of the hammer. This is effected by shifting the entire key-board to a small distance from its usual position.

Various actions have been introduced to lighten the touch of the instrument, or, in other words, to enable the player to produce a great amount of tone with a comparatively small muscular exertion. The "repetition action," patented by Messrs. Erard, is the most important of these; and the instruments contributed to the Great Exhibition by that distinguished firm were of the highest class of excellence, both as regards their musical properties and the beauty of their cases.

We cannot conclude the present notice without referring to the admirable design and careful execution of the pianofortes of Messrs. Broadwood. The instrument from which the patterns we have engraved have been selected was designed by Mr. Edward Barry, and reflects high credit upon his ability and taste. Its material was ebony, richly carved and gilt; the top being inlaid with satin-wood. Above each of the three legs, carved medallions of Handel, Mozart, and Beethoven, were introduced. The whole of the carving was executed by that distinguished artist, Mr. John Thomas, to whose labours in connexion with the Palace of Westminster we have already alluded.

* "British Manufactures." Series IV.

PLATE LXXXIV.

INDIAN EMBROIDERY ON BLACK CLOTH.

On the threshold of an analysis of the art displayed in the specimens contributed to the Great Exhibition from the continent of India, the student is met by two obvious and distinct varieties; one of which he will find to emanate from the ancient Hindoo traditions, and the other, through the Mahommedan conquerors of the soil, from the far-off glories of ancient Persia and the imperial court of Byzantium. In the present article we shall attempt to note a few peculiarities concerning the former of these styles, reserving for a subsequent paper a similar brief investigation of the latter.

It is impossible to read the accounts of Arrian, Herodotus, and other ancient historians, without perceiving that, even in the days of Darius Hystaspes and Alexander the Great, the population of Hindostan had made considerable advances in the cultivation, if not of the arts of civilisation, at least of those of barbaric magnificence. The Greeks of the Bactrian kingdom, on their assumption of independence from the dominion of the Seleucidæ, opened intimate commercial relations with India, and continued to maintain them from the year 254 to the year 126 B.C. A mutual influence was thus exercised over the arts of the two countries, and many peculiarities of mythic tradition became common to each. To attempt to follow Sir William Jones in his chronological researches into the history of the Hindoo races, would, in our present inquiry, be as superfluous as it would be difficult; for, even if we were enabled to trace distinctly the succession of those races, the materials for discriminating the arts peculiar to each are utterly wanting. Numerous traditions, however, justify us in believing that the early conquerors of Malwah, of Berar, of Ghuzerat, and of Delhi, were chiefs extraordinarily addicted to the pleasures of the senses; for we find that the city of Canouj, which was even more extensive than that of Delhi, contained at one time no fewer than 30,000 betel-shops, and 60,000 bands of musicians and singers, paying tax to Government.

The ancient possessions of the Greeks in Bactriana, as well as in the provinces of Cabul, Candahar, and Cashmere, were at this period (which shortly preceded the incursions of the Mahommedans,) under the dominion of the Tâtars; and Lahore, and the other countries on the left bank of the Indus, were tributary to the Kings of Persia. The Rajahs of Canouj, Delhi, and Ajmeer, were the earliest to bow to the conquerors; while the Rahjpoots, strong in their natural fortifications, continued for very many centuries successfully to repel their advances. Although it has been asserted that Mahommedan warriors had penetrated into India as early as the eighth century, the fact appears exceedingly questionable. There can be no doubt, however, that, at that period, commercial relations of considerable importance existed between the inhabitants of India and the Arabs. It appears pretty certain, nevertheless, that the arts of the Hindoos were preserved integrally free from any admixture of the Mahommedan element until about the year 1000 of the Christian era, when the fierce assaults of Mahmoud subdued the native independence of the people, and laid a foundation for the domination of those races whose arts differed from those of the Hindoos no less than did their faith.

It has been well and frequently observed, that a remarkable coincidence may be universally traced between the religion and the arts of every people; and that, as the former changes from time to time, so do the modes in which art manifests itself. In examining the ancient Hindoo monuments we find this to be peculiarly the case, since all those which date from the middle of the sixth century B.C. (the epoch in

which the celebrated ascetic, Buddha, introduced his severer rule), display a considerable variation from those executed under the influence of the faith of Brahma.

It is observed by the learned Kugler, that, in Hindoo architecture, imagination is the predominant feature. "A world it is," he says, "of tales and legends. The whole existence of the Hindoo may be described as bordering on the region of phantasy; the most obvious and ordinary objects appear to him revealed as wonders; history becomes obscure before his eyes, and melts into tradition." Hence, in every Indian representation there is a wild uncertainty, far removed from the rigid vigour and precision of form peculiar to Egyptian art. Every ornament is incessantly varied, in obedience to the fancy of the designer; and even the representations of the gods themselves are infinitely diversified.

The most legible and striking records of that species of art which may be regarded as especially Hindoo, are to be read in the grottoes of Carli, of Elephanta, of Salsette, of Nassuk, and of Ellora. As it is impossible in this work to convey an idea of those remarkable temples, we are fortunate in being able to refer to the admirable works of Mr. Fergusson,* whose pen and pencil have been so successfully devoted to the illustration of these mysterious remains. The monuments to which we have alluded are referred by Mr. Fergusson to various epochs, dating from the middle of the third century B.C.; and he ascribes the earliest developement of the ordinary form of rock-cut temples to the influence of the Buddhists.

That quality of imagination to which we have already referred, precluded, to a great extent, anything approaching to direct imitation among the Hindoos; and hence we find that the ornaments employed in the decoration of their edifices are, for the most part, strictly conventional. The system of bracketing-out, and placing plane on plane, is one of their peculiar characteristics; and in like manner it may be observed, that we never find in the remains of purely Hindoo art those elaborate representations of flowers and other natural objects which belong exclusively to the Mahommedan styles. So little do the arts appear to have changed in India, from the remote periods to which we have alluded, to the present time, that numerous objects are still constantly produced, in which the Mahommedan (or Persian and Byzantine) principles of art can be in no wise traced; but in which, on the contrary, the primary Hindoo elements of design are obviously predominant.

* "The Rock-Cut Temples of India," and Papers in the "Journal of the Royal Asiatic Society."

H. RAFFLE. DEL.

LOUIS WYATT PINXT.

GROUP OF CHINESE BRONZES

LONDON PRINTED AND PUBLISHED AUGUST 5TH 1852 BY DAY & SON L. THOGRAPHERS TO THE QUEEN

PLATE LXXXV.

CHINESE BRONZES,

INLAID WITH SILVER WIRE.

It has been frequently remarked, that the more intimate our acquaintance becomes with the arts of the Celestial Empire, the more clearly we are enabled to perceive in Chinese productions the prototypes of those which we have been in the habit of regarding as essentially European and modern in their origin. Thus it is usual to consider the art of damascening, or inlaying gold and silver upon vessels executed in the baser metals, as having had its origin in Asia Minor; but the exquisite and very ancient bronzes which we now engrave, as well as other existing specimens of a similar nature, show that the art attained a high degree of perfection in China at a yet more remote period.

We need scarcely call attention to the refined and almost classical forms of the objects before the reader, or the beautiful patterns in which the silver threads have been inserted, since they must at once speak for themselves. These qualities are so highly appreciated by Chinese antiquaries (who necessarily abound in a country the traditions of which ascend to the earliest epochs), that few objects of *vertù* excite a larger share of their attention than the vases and other relics of bronze, the inscriptions upon which record the perfection attained by their ancestors in the arts of beating out, casting, inlaying, and engraving metals.

M. Labarte* informs us, that for a great number of years ancient vessels of bronze have been preserved and highly esteemed in museums and private collections in China. The Emperor Yu, who was associated with Chun in the administration of the empire more than 2200 years before the Christian era, is said to have caused nine great vases of brass to be founded, upon each of which was engraved a plan and description of one of the nine provinces of the empire. The Emperor Kien-Loung, who reigned from 1736 to 1796, caused to be published (in 42 volumes folio) descriptions and illustrations of the ancient vases deposited in the Imperial Museum, in which work the fabrication of such objects is traced with considerable learning and research from the earliest period of the dynasty of Chang,—1766 years before our era; these conclusions being based on the inscriptions engraved upon the objects. A copy of this magnificent work exists in the Royal Library at Paris; and an interesting series of wood-engravings in the Great Exhibition were, we believe, a selection from its illustrations.

The beautiful colour of the metal which composes these vessels, their graceful form, and the extraordinary sharpness of their decoration and engraving, have caused the few specimens which occasionally reach Europe to realise great prices, and to become objects of special interest to connoisseurs.

In the extremely interesting museum of M. Debruge-Dumenil† a vase was preserved, with an inscription which would appear to connect it with an interesting tradition concerning the peculiar metal of which such objects are composed. The inscription states that the vase was executed under the dynasty of Ming, in the period Siouen-te, which corresponds with the years 1426 to 1436 of the Christian era. Now Du Halde‡

* "Description des Objets d'Art qui composent la Collection Debruge-Dumenil." Paris, 1847. 8vo. pp. 402.

† It must always be a subject of regret that this collection, which was replete with the most valuable information on the industrial arts of every nation and of all periods, was allowed to be dispersed by public auction, when it might have been acquired by this nation at an exceedingly moderate cost.

‡ "Description de l'Empire de la Chine." Paris, 1725. Tom. i. pp. 512.

informs us that during this period, in the reign of the Emperor Siouan-tsoung, the imperial palace was destroyed by a fire which lasted for many days, and the violence of which was so great, that a prodigious quantity of gold, silver, and brass, was melted and fused together in the ruins. The Chinese annals add, that with the material thus formed a great number of vases were fabricated, which are now very much esteemed in China and of great value. From the fineness of the casting, and the perfect colour and "patina" of the vase in the Dumenil collection, M. Labarte presumes that it was one of those so produced.

The Chinese have long been celebrated for various alloys of copper and other metals. In bell-metal, especially, their productions have been remarkable, not only for purity of tone, but for the extraordinary size and perfection which they have been enabled to give to their castings. Old travellers relate, that at Nankin there were formerly four bells, of such enormous size, that, although not swung, but only struck with a wooden mallet, they brought down the tower in which they were hung, and have long lain neglected among its ruins. One of these bells is about 12 feet high, $7\frac{1}{2}$ in diameter, and 23 feet in circumference. From the dimensions of this bell its weight has been computed at 50,000lbs.

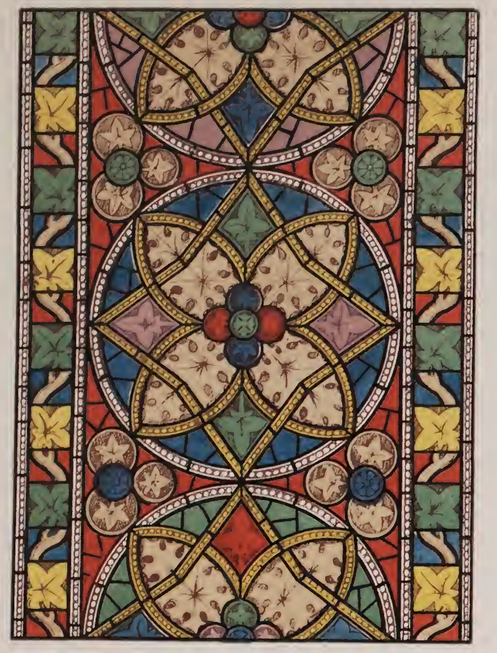
The large Chinese bell in the British Museum is quite a modern work, but there can be no doubt that, like most of the artistic efforts of that remarkable country, it reproduces the ancient types, both in form and decoration. It is surmounted by the Imperial Dragon, and is ornamented with a number of small figures of Buddha in high relief. Nearly the whole surface of the bell is covered with inscriptions; among which are eight lines of poetry relative to the Buddhist religion. The smaller inscriptions, in the Chinese and Sanscrit character, are entitled the Prayer of Fuh (Buddha), "with a list of names of believing doctors and faithful ladies." It also bears the names of its makers; of the authorities of the Teen-pe-ling temple, near Ningpo, whence it was brought; and of the civil and military officers of that city, together with the date of its being cast,—"on a morning of the eighth moon in the 19th regnal year of the present Emperor, Taou Kwang." (A.D. 1839–40).*

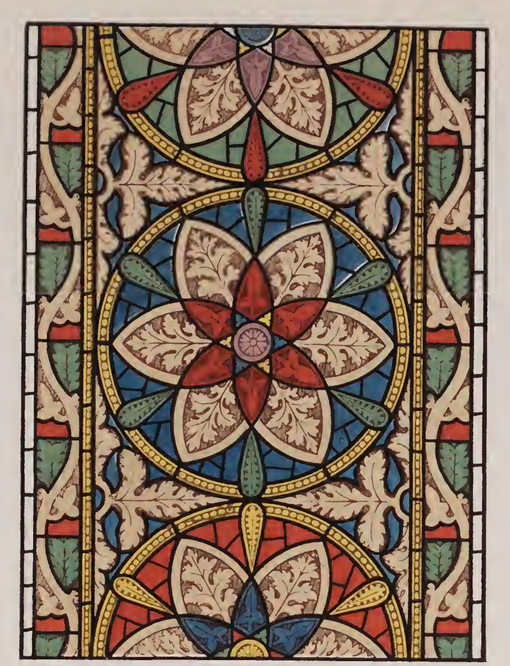
The celebrated Chinese gongs are usually formed of a metal somewhat similar to that of the large bells above referred to, but more brittle in quality. They appear, upon analysis, to be composed of eighty parts of copper, and twenty parts of tin. These instruments are much used in the temples, in processions before the mandarins, and in theatrical entertainments.

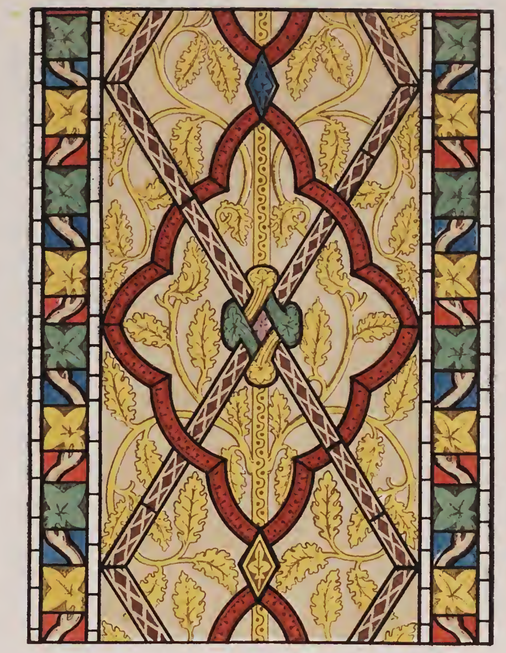
Another alloy, which has been denominated white copper, and which in its external appearance somewhat resembles German silver, is well known and extensively used in China. Besides its employment for ordinary utensils, this metal is occasionally applied in a somewhat singular manner,—as an external coating to cups, saucers, &c., of porcelain. In addition to specimens of this kind in the Great Exhibition of 1851, and in Mr. Dunn's Chinese collection, the latter contained some cups of hard wood, lined and edged with white copper. A basin of this material was analysed by Dr. Fife, who describes it as "approaching to the colour of silver, and so very sonorous that, being struck by the fingers, the sound might be heard at the distance of a mile. It was malleable at a natural temperature, and at a red heat; but when heated to whiteness it became quite brittle. It was found to consist of one-half of copper, and one-half of zinc and nickel, in nearly equal proportions, with a small quantity of iron. It cost in China about one-fourth of its weight in silver."†

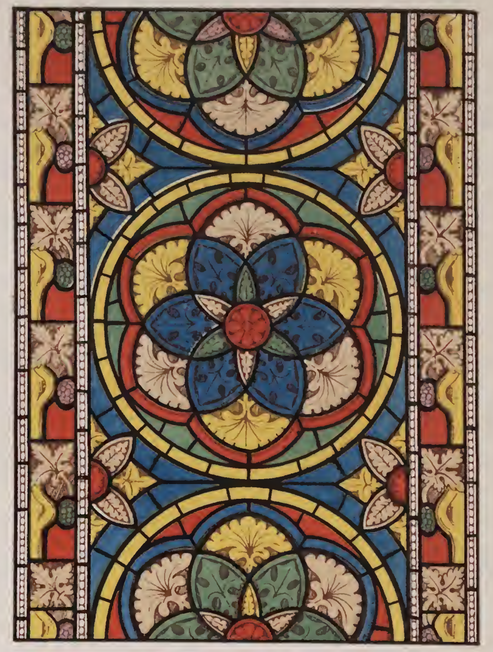
* Synopsis of the British Museum, 1851.

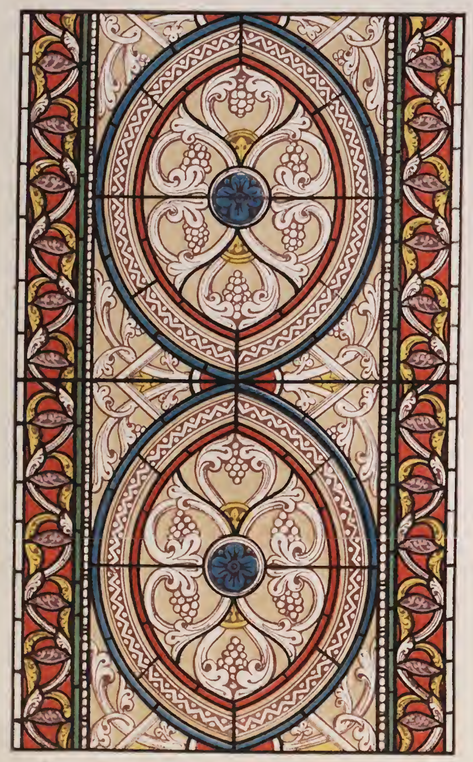
† Holland's "Manufactures in Metal," vol. iii. p. 169.

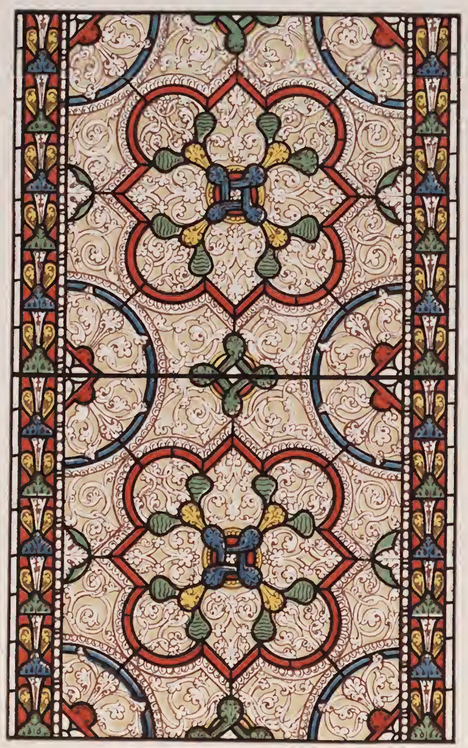


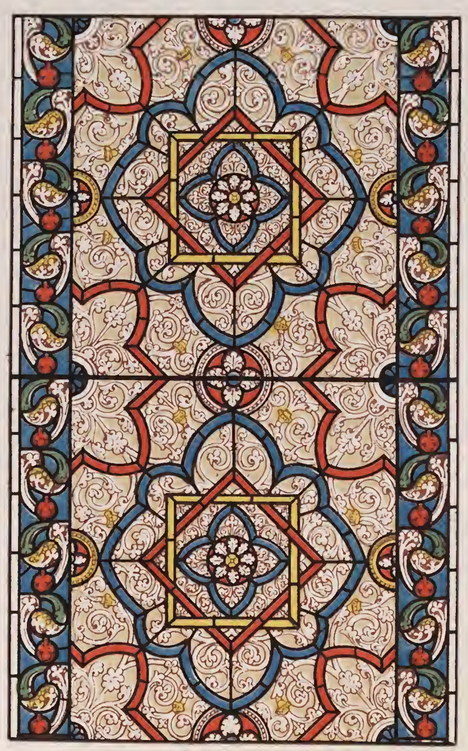


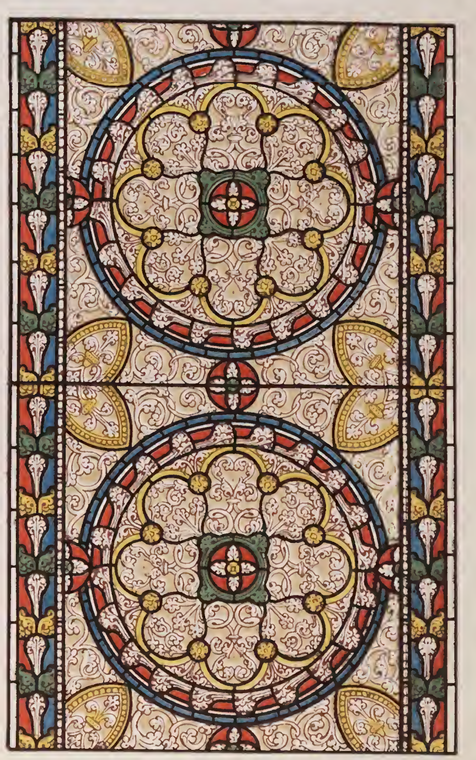












W. DOIG BY WYATT STREET

STAINED GLASS BY WAILES OF NEWCASTLE UPON TYNE, AND BY CHANCE OF BIRMINGHAM

LONDON: PRINTED AND PUBLISHED AUGUST 18TH 1862 BY DAY & SON, LITHOGRAPHERS TO THE QUEEN

PLATE LXXXVI.

STAINED GLASS,

EXHIBITED BY MESSRS. CHANCE OF BIRMINGHAM, AND WAILES OF NEWCASTLE-UPON-TYNE.

In this Plate we are presented with eight specimens of mosaic windows,* the upper executed by Mr. Wailes, and the lower by Messrs. Chance, the merits of both of whom are too well known to need any eulogium from our pen. The same description of glazing, though probably without any colour, appears to have been in use from a very remote period; as in the early French writers we find notices of glass windows, though without any reference to their being coloured. They probably consisted of white glass arranged in patterns; and the windows which Biscop, abbot of Wearmouth, caused to be made by French artists, brought over to this country for that object in the seventh century, were probably of this description.

What impulse the artists thus imported gave to the art in England is exceedingly uncertain; but a vast lacuna occurs between the age of Biscop and the first half of the thirteenth century, the probable date of the splendid glass in Canterbury Cathedral, the earliest of which we have a quantity sufficient to furnish materials for any general conclusions as to style. These windows consist of what is called medallion glass, from the subjects being introduced in a series of medallions on a richly-diapered ground. An intricate border, also in deep colours, completed the composition. These medallion windows were usually restricted to the lower parts of the building; and the clerestory lights were filled with figures often larger than life. This description of window is very rare in England, though small specimens are to be found in Chichester Cathedral and elsewhere.† Such are the windows of Salisbury Cathedral, of Chetwode Church, Berks, the Five Sisters of York, and very many others. As to the material itself, it was exceedingly thick and rich; and the effect of that forming the windows at Canterbury can almost be compared to what might have been produced had cut jewels been employed. The yellow stain, so common in succeeding centuries, was unknown, the carnations were represented by a pink-looking glass, and the figures themselves suffer from the defective drawing of the time, and exhibit stiff poses and impossible draperies.

The fourteenth century presents us with many mosaic windows in which the cross-hatched ground is omitted, and the foliage consists of natural leaves, such as the oak, maple, thorn, &c., instead of the old conventional trefoil; the newly-discovered yellow stain also gives variety to the composition. Most of the village churches of the time of the first and second Edwards were glazed in this manner; such as the chancel of Chartham Church, Kent; that of Trumpington, Cambridgeshire; and even more important buildings, such as Merton College Chapel, Oxford.

As to the mechanical processes of the glass of the fourteenth century, we may observe that it is a little thinner and less deep, as regards colour, than that of the preceding period, although the effect is by no means impaired. Flesh-coloured and white glass are used indifferently for the carnations. The white is tinctured with a lighter green, and the figures are generally well drawn. Occasionally, however, the pose is over-strained,

* A mosaic window was one which consisted of pot-metal glass, in small pieces of various colours, arranged in geometrical patterns.

† With regard to Westminster Abbey, as only a few of the medallions remain, it is impossible to say whether they were placed upon a coloured ground, or formed part of the decorations of a mosaic window; the latter is the more probable, as nearly all the English windows of the thirteenth century are composed of a sea-green glass, varied with occasional coloured figures or ornaments.

and too much sway given to the figures. It would appear that in large works, especially those connected with the royal palaces, the workmen were impressed, the coloured glass was bought from dealers, and the designing of the subjects, together with the cutting, enamelling, and leading of the glass, was executed on the spot. This was the case with regard to St. Stephen's Chapel, where John de Chester was the principal artist, besides whom, five other master glaziers are mentioned as being employed at 1*s.* per day.

The perpendicular glass, executed between 1380 and 1500, constitutes by far the largest portion of all that has survived the accidents of ages. It is remarkable for being still lighter in tone than that of the decorated period, for an almost exclusive use of the figure-and-canopy arrangement, of which an early and fine example—the work of William of Wykeham—is to be found in the windows of New College Chapel, Oxford; and for masses of white glass being largely introduced into the picture windows. Indeed, almost all the ecclesiastical work of this period consisted of coloured glass; mosaic and "grisaille" windows intermixed with heraldry being reserved for domestic use. Another favourite arrangement (sometimes, though rarely, observed in decorated work) consisted in filling the lights of the window with a series of small subjects in coloured glass, one above another, and separated only by small canopies. Such is the great east window of York Cathedral, for which John Thornton, master glazier of Coventry, was to receive 4*s.* per week for three years, besides a donation of 100*s.* at the end of each year; and if the dean and chapter approved of his work, 10*l.* over and above his salary.* Among the numerous churches containing perpendicular glass, it may be sufficient to mention St. Neot's, Cornwall, where the respective windows were the gifts of the men, the bachelors, the maids, and the wives of the town; also Fairford Church (the glass of which is generally said to be of Flemish work, although Mr. Winston, our greatest authority on such subjects, has decided it to be of English origin); and, lastly, the celebrated windows in Great Malvern Church, representing Henry VII., Prince Arthur, Sir Reginald Bray, &c.†

The windows of the domestic buildings of this period were extensively decorated with the arms of the owner and his family connexions; these for the most part consist of a regular achievement, *i. e.* shield, helmet, lambrequin, crest, and supporters, or more generally, the shield or badge only surrounded by a wreath, often of a yellow or green colour, broken up by blue or red flowers at intervals. A beautiful series of the former variety remains at Ockwells, in Berkshire.‡ We have not, however, many specimens of the Renaissance style in England in addition to the windows in King's College Chapel, Cambridge.§

During the reign of Elizabeth little stained glass was executed beyond a few coats-of-arms; but before the civil wars the chapel of Archbishop Abbot's hospital at Guildford, and that belonging to the Hon. Society of Lincoln's Inn, had been filled with coloured figures by Van Linge and his disciples. We owe the east window of University College, Oxford, to Giles of York (1687), and the lower lights of the east window of Merton to William Price. In 1718 his brother Joshua executed the east window of St. Andrew's, Holborn, a really good piece of work, and presenting a very rich effect. All these works contain a large proportion of pot-metal, the rest of the colouring being obtained by enamelling colours on the surface of white glass. However, towards the middle of the eighteenth century, this latter manipulation entirely superseded the old pot-metal system, and 1777 presents us with the "washey virtues" of Sir Joshua Reynolds transferred to glass by Mr. Jervais: since which time there has been a gradual progression towards the revival of the styles of the thirteenth and fourteenth centuries; but there is still something about every reproduction which proclaims its modern paternity, in spite of "antiquating" and smudging. Mr. Winston has lately assured us that the fault is in the glass itself, which is not composed of the same materials as that used in the middle ages, promising us some windows for the round part of the Temple Church to be executed in the new glass. When they are fixed, the public will have an opportunity of seeing how far the theory is sustained by the practice.

* During this period we find the figures drawn with more delicacy, though with less boldness. The white glass, which assumes a bluish tint, is almost exclusively used for the flesh; the ornaments again become conventional; stippled shadows are used in the draperies; and it would appear that much of the pot-metal was imported from abroad, as in 1447, John Puddie, of Westminster, the contractor for the glazing of the Beauchamp Chapel at Warwick, was to use "glasse from beyond the seas, and no glasse of England."

† Figured by Carter and Shaw.

‡ Figured in Lyson's "Britannia."

§ These windows belong rather to the perpendicular school than to that of the Renaissance. Six different master glaziers were employed upon them at one time; and although they no doubt kept their work separate, the designs probably proceeded from but one hand. The roundells (small circles containing a history or allegorical figure, usually executed in chiar' oscuro only) are also to be found about this period; but it is very doubtful if they were not all imported: indeed the Reformation put a stop to works of any extent in stained glass; and if we wish to see really good Renaissance windows, we must go to Liége Brussels, Gouda, Bourges, and Auch. The windows in the choir of Lichfield, and of Southwell Minster, are of this date, and came from Belgium.

PLATE LXXXVII.

FIGURED SILK,

MANUFACTURED BY CAMPBELL, HARRISON, AND LLOYD, OF SPITALFIELDS, FOR LEWIS AND ALLENBY OF LONDON.

In the notice accompanying Plate XXII. we entered briefly into the history of the silk trade, and took occasion to commend both the energy and taste of Messrs. Lewis and Allenby as employers, and the ability and capacity of Messrs. Campbell, Harrison, and Lloyd, as manufacturers; and a more agreeable example than the present Plate affords of the joint productions of these gentlemen could hardly have been selected.

We now propose to describe in general terms some of the processes involved in the production of fabrics of this description. It is justly remarked by Mr. Ward,* that "in the supply of the raw material England possesses a decided advantage over the rest of Europe; and, if a certain portion of the finest quality of French-grown silk be excepted, an almost unlimited command over the productive resources of the world." For so favourable a commercial position, we are indebted to the improvements which our continued energy, in the invention and application of elaborate machinery to manufacturing purposes, constantly secures to us. The power of effecting the first conversion of any raw material skilfully and economically, gives to the country possessing it an immediate superiority, by at once attracting to itself the largest and best supplies of the material. Thus, as Mr. Ward observes, the machine introduced by Royle, of Manchester, for throwing silk, has "materially advanced the manufactures of this country, and rendered us comparatively independent of the Continent. Before that invention was worked we drew our principal supply of thrown silk from abroad; and as a high duty was imposed upon its importation, to protect the throwster, whose clumsy and expensive mode of throwing was a premium in favour of the foreigner, we could only procure the finer qualities of silk at a comparatively high price." Low-priced silks, which appeared almost inconvertible, have been turned to the greatest mercantile advantage, by the application of scientific mechanism. The power of manufacturing these otherwise worthless materials into fine-thrown silk has of late years been carried to such an extent in England, that waste silk has been bought up in France, brought into this country, and returned in a thrown state; "and although a duty of two francs the kilogramme is imposed upon its reintroduction there, it is cheaper and better than any silk thrown in the best of their establishments."

In Derby, Manchester, Macclesfield, Congleton, and Leek, immense factories or mills are constantly at work in changing the raw silk, brought in bales from Broussa, Bengal, China, Italy, and Persia, into varieties of thread, as different as the purposes to which they are to be applied. Mr. Dodd, in his admirable manual of "British Manufactures," describes one of these as "*dumb singles*, consisting of silk merely wound and cleaned." "This," he observes, "is used in the weaving of gauze and other thin fabrics. Another manufactured variety, called *thrown singles*, is silk which has been wound, cleaned, and thrown; and is then used in the weaving of ribbons and common silks. *Tram* is silk which, besides being wound, cleaned, and thrown, is doubled; that is, two or more thicknesses of thread are combined into one, and twisted together. This is used for the weft or cross-threads of gros de Naples, velvets, flowered silks, and the best varieties of silk goods. Another kind, called *organzine*, besides being wound, cleaned, and doubled, is twisted, or

* "The World in its Workshops," 8vo. 1851.

thrown, twice; the first twist being like the yarns that form a strand, and the second like the strands which form a rope. This forms a hard and compact thread, and is used as the warp, or long threads, for the same kind of goods as those which have *tram* in the weft. Lastly, *sewings* are compound threads of silk, wound, cleaned, doubled, and thrown, with especial reference to their ultimate uses as sewing silk."

Hence it will be seen that, in the preparation of thread, we have four principal operations — winding, cleaning, doubling, and twisting. *Winding* consists simply in transferring the silk from the form of a hank to that of a continuous thread, wound round a bobbin. *Cleaning* is performed by passing the threads through a cleft in a piece of steel, so adjusted in size as to allow them to pass freely in their proper state, but to detain and remove all fluff or other extraneous matters. The operation of *doubling* consists in winding two threads of silk from separate bobbins, in such a manner that the two shall be laid together throughout every convolution around another bobbin. Sometimes many more than two threads are thus laid together; the number depending upon the strength required for the thread to be ultimately formed. *Throwing* is simply twisting these combined threads together, so as to convert them into a miniature rope, in which all the parts are so united as to become one, in strength and durability.

The silk thread thus prepared for the weaver is, in the first instance, stretched in long parallel lines upon a warping frame, by means of a warping machine; and one end of the warp being attached to a roll of wood, called the cloth-beam, or breast-roll, the remainder is secured around a smaller roller called the beam, or yarn-roll.

In noticing Plate XXIV., we described the simple apparatus by which the Indian weaver ordinarily produces some of even his most elaborate fabrics; and from that description our readers may gather a correct general impression of the machinery essential to the production of plain woven stuffs. Silks, as at present manufactured, are divided into plain and figured goods; the difference between them being that in the former the warp threads are raised and depressed, to allow of the passage of the shuttle, in a regular alternation; while in the latter they require to be lifted in constantly varying groups; the pattern being produced by bringing the weft threads to the surface in some places, and passing them beneath the warp threads in others.

Various means of carrying out this object have been successively devised, and are still in use. Figure-weaving may be of various degrees of complexity. The warp may be of one colour only, and the weft of another, or the warp may be of one colour and the weft of several. When the latter is the case, a number of different shuttles are used in succession; each carrying a bobbin on which a different-coloured silk is wound. Occasionally the warp threads are also varied in colour, producing a striped or chequered effect. Where the pattern is exceedingly simple the warp threads may be raised or depressed by treadles, acted upon by the feet of the weaver. When, however, more elaborate forms are to be produced, the workman, with certain looms, has the assistance of a boy to raise the different leaves or heddles, to which strings are attached, connecting them with particular sets of warp-threads. The operations of tying the warp-threads to the heddles, and placing the latter in such succession that the pattern may be realised by raising them in a particular order, is technically called "mounting the loom," and is the most difficult operation in the weaver's art. The series of heddles thus arranged is known as "the harness" of the loom. As it was found that the boy would occasionally pull the wrong string, from forgetting the precise order in which the heddles were to be raised, an ingenious machine, called "the draw-boy," has been contrived, in which an automaton action pulls and releases the strings in regular and unerring succession This apparatus is, of course, a great improvement upon any involving manual labour only; but, in proportion to the complexity of the pattern, the machine becomes so elaborate, that it is found necessary to limit it to the production of patterns having what are called short "repeats."

For the production of more intricate designs, recourse must be had to the Jacquard loom. It is remarked by Mr. G. R. Porter,* that "in the course of the very few years which have elapsed since its introduction into this country, the Jacquard loom has entirely taken the place of every other method of figured silk-weaving, and has been in no small degree instrumental in bringing that curious and beautiful art to its present state of advancement. The elaborate specimens of brocade which used to be brought forward as evidence of skilfulness on the part of the Spitalfields' weavers of former days, were produced by only the most skilful among the craft, who bestowed upon their performance the most painful amount of labour."

In an ensuing article we shall trace the capabilities of silk-weaving, as aided by the Jacquard loom.

* "Treatise on the Origin, Progressive Improvement, and Present State of the Silk Manufacture," in "Lardner's Cyclopædia."

LONDON: PRINTED AND PUBLISHED BY ROWNEY & CO. 51 RATHBONE PLACE.

PLATE LXXXVIII.

INDIAN EMBROIDERY ON CRIMSON SILK.

The specimen of embroidery we now engrave differed from others contained in the Great Exhibition in one striking particular, inasmuch as while those had been produced by working entirely with thread, this was effected by what is called *appliqué*, a process somewhat resembling our system of patchwork,—small pieces of various materials being cut out and sewn down upon a ground. The beauty of design and perfect balance of colour manifested in this production are so obvious as scarcely to need any comment. We shall proceed, therefore, in the present article, with the subject treated in our notice of Plate LXXXIV.; devoting our attention to Mohammedan, in contradistinction to Hindoo art.

Although it is possible that many flying incursions, taking the form rather of forays than invasions, may have been made by the Mahommedans as early as the eighth century, it does not appear that any important conquest was made by them until the latter part of the tenth century. Sabuktaghin, a Tartar soldier, was proclaimed by the army monarch of Ghuznee, and we have certain records of his having twice passed the Indus, when, after devastating the province of Lahore, he returned to Ghuznee laden with plunder. On his death, in the year 997, he was succeeded by his son, the celebrated Sultan Mahmud, who was scarcely less distinguished as a zealous follower of the Prophet and an enthusiastic Arabic scholar, than as a courageous and skilful general. It is unfortunate that the contemporary records of his invasion, which were written for the most part in dialects little understood and appreciated in India, should, from that cause, have entirely disappeared; while those of his less important successors, which were in the Persian and other languages, have survived to the present time.

Although it is unquestionable that Mahmud conducted at least twelve expeditions against the Hindoos, and effected considerable changes throughout the districts which he visited, he does not appear to have established any regular government, with the exception of a tributary dominion in Lahore and the north-western provinces. No monuments attributable to Mahmud exist in India proper, but at Ghuznee there may yet be seen his Minar, or rather his Column of Victory, together with his tomb. Of the latter we are, unfortunately, not possessed of any drawings; but the former appears to correspond closely in style with contemporary Persian art.

The successors of Mahmud, degenerating in force of character, were at length overthrown at Ghuznee in 1183, by Shahab-ud-Din, who established a regularly constituted government. The dynasty, of which Mahmud was the chief, is known as the Ghaznevide, while that which succeeded is termed the Gaurian. It may naturally be supposed when we consider that these invaders, of Tartar origin, entered the country as conquerors, and retained it at first by the strong hand only, that many years elapsed before the monuments which they erected indicated the advent of any new styles of design. It is not until after the death of Kottub, who having been appointed ruler of the newly-conquered provinces in 1193, took possession of Delhi, and made it the seat of his government, that we begin to perceive any awakening cultivation of the arts. Under Shems-ed-din Altemsh, who died in the year 1235, monuments began to arise. In the celebrated Kottub Minar, a column of Victory raised to celebrate the achievements of his predecessor, and constructed in evident imitation of that of Mahmud at Ghuznee, as well as in his great mosque, Altemsh exhibits his own taste under a somewhat interesting form. The arches of the great court of his mosque would at first sight appear to be strictly Saracenic in style, agreeing in their form and general proportions with those usually executed in Persia, and throughout the

Saracenic empire. A close inspection, however, shows that, while the general form was unquestionably determined by a follower of the Prophet, the ornamental carving, which is of the most elaborate description, was entirely executed by Hindoo workmen. The state of the arts of design in India at this period presents a singular coincidence with that which existed in Sicily on the advent of the Normans. In the former country, as well as in the latter, the conquerors dictated the general form of the monuments, while the conquered were employed to carry out and realise the intentions of the invaders.

The Mohammedan kingdom once firmly established, and its religion extended and consolidated, there can be little doubt that numerous mollahs were brought from the older seats of the faith, and from the colleges in which they were educated. The frequent pilgrimages to Mecca and Medina would alone suffice to familiarise the nobles of the Indian empire with the forms of the purest Mohammedan art, and hence there can be little doubt that fresh types of form were continually imported. It is remarkable, however, that while the Hindoos, as labourers, learnt to copy, with wonderful skill, the general aspect of the designs of their masters, they yet maintained an absolute adherence to their primitive modes of working. Thus, in all the dagobahs and chaitayahs, the Hindoo arch is constructed by means of stones laid horizontally; one extending beyond the other, and each supported, after the manner of corbelling, by the stones beneath: whilst, in buildings executed by Mahommedans, similar effects are in all cases produced by voussoirs and wedge-shaped stones. Even in the present day, when a Hindoo is set to execute a Moorish arch, he will instinctively construct it according to the horizontal mode, unless otherwise specially directed. It is much more common to recognise Hindoo features in buildings of Mohammedan construction, than it is to find Mohammedan features in works executed by Hindoos alone.

Materials are wanting to enable us to trace the gradual developement of Moorish architecture in India; but the magnificence of many of its monuments bears unquestionable evidence of the extraordinary advancement of the arts of design among that rich and luxurious people. This is especially evinced in the celebrated Taj Mehal, near Agra, erected by the Emperor Shah Jehan, in the seventeenth century, as a mausoleum for his favourite wife. It is to be hoped that Mr. Fergusson, who has so admirably illustrated Hindoo architecture, may be induced to furnish the public with similar elucidations of the successive Mohammedan styles.

Throughout this article we have spoken only of architecture, since there are no existing monuments of other arts which enable us to predicate respecting them with any degree of certainty. Arguing by analogy from the history of the Arts in all countries, we may readily infer that design, as applied to industrial purposes, experienced similar fluctuations to those of architecture in every stage of its progress; and as the practised eye can at once detect and separate in any building the features which belong respectively to Hindoo and to Mohammedan architecture, so in every pattern, whether for carving, weaving, or embroidery, a very slight study of the subject will enable the student to attribute to its right source the leading features and minute details of the design.

OBJECTS SELECTED FROM A DESSERT SERVICE PRESENTED BY HER MAJESTY THE QUEEN
TO THE EMPEROR OF A PERSIA EXHIBITED BY MINTON OF STOKE UPON TRENT

OBJECTS SELECTED FROM A DESSERT SERVICE,

PRESENTED BY HER MAJESTY THE QUEEN TO THE EMPEROR OF AUSTRIA.

EXHIBITED BY MINTON OF STOKE-UPON-TRENT.

Some of the pieces of this exquisite service we have already engraved (Plate XI.); and we need only add to the remarks we then offered, the following observations, which are justly due to the respective artists whose labours contributed to the production of this important work.

The general plan and arrangement of the service, the combination of unglazed parian and porcelain, and the general style of decoration, were the suggestions of Mr. Herbert Minton. Mr. Jeannest, the Professor of Modelling at the School of Design in the Potteries, made all the drawings; and the modelling was almost entirely executed (under Mr. Minton's daily superintendence) by three English artists. Two of these gentlemen had acquired their knowledge and skill in Messrs. Minton and Co.'s establishment; and the third, Mr. Beattie, had been for many years employed by Mr. Smith, the eminent silversmith of Duke Street, Lincoln's Inn Fields. These gentlemen were in some degree assisted by Mr. Guinet, who had been recommended to the firm by the Baron Marochetti. The painting and gilding were all executed by English workmen, long employed in the manufactory.

In a former article (Plate LXXXI.) we traced the early history of English ceramic art; and we now propose briefly to narrate its progress in the sixteenth and seventeenth centuries.

Until the end of the fifteenth century, with some unimportant exceptions, the various substitutes for earthenware, to which we have before alluded, were almost exclusively employed. Fictile vessels, probably imported from Germany and the Low Countries, were so much esteemed in Queen Elizabeth's time, as to have been mounted in a very costly manner. "An inventory of that period, of the effects of a Staffordshire gentleman, gives to *two jug stone pots, bordered with silver and gilt, with covers*, the value of 3*l.*; while *two Venice glasses, gilded and in cases, were worth only* 6*s.* 8*d.** The first impulse to the manufacture of earthenware in England was, however, given by the extensive importation, in the reigns of Elizabeth and James I., of the articles produced at Delft. In that part of the world the scarcity of stone has always led to the cultivation of the plastic qualities of clay; and Delft ware became famous in its application to purposes of general utility as early as the middle of the sixteenth century. Mr. Marryatt observes that "the Dutch ware made at Delft is celebrated, not only on account of its singularity of form and colour, but also for its excellent qualities. It is remarkable for the beauty of its enamel, which is not a shining white, but slightly tinged with blue, and presents a smooth and even surface. The articles of Delft manufactured for ornament were chiefly copied from the old Japan porcelain, both in form and colour. The exclusive communication which the Dutch so long enjoyed with Japan, had rendered them possessors of numerous specimens of this ware, many years before it was known to the rest of Europe; and, early familiarised with the quaint forms and devices of the Japanese, the Dutch were led to introduce them into their home manufacture; so admirably are the Dutch designs imitative of both the pattern and the blue colour of the original, that nothing short of the touch and a close inspection will suffice

* We are indebted to Mr. Marryatt's valuable "History of Pottery and Porcelain," for this and much other information on our present subject.

to detect the difference." It has been supposed that the Dutch, although imitating the patterns of the Japanese, derived their knowledge of the ceramic processes, in the first instance, from Italy. In ornamental works, however, they fell immeasurably short of the potters of Florence. "Blue and brown," as Mr. Aikin observes, "seem to have been the only colours employed by them, and their favourite patterns appear to have been either copies of the Chinese, or European and Scripture subjects, treated in a truly Chinese manner and taste."

As proving the early origin of the Delft ware, and, perhaps, its first introduction into England, Rapin the historian records that, in the year 1506 (temp. Henry VII.), Philip and Joan, who had taken the title of King and Queen of Castile, were driven by stress of weather into Weymouth harbour. The high-sheriff of the county hospitably entertained them, and the king, on leaving, presented him with "some immense Delft ware dishes, and some bowls of Oriental china," the latter of which were then great rarities. Mr. Marryatt states that some of these presents are still in the possession of J. B. Trenchard, Esq., of Potwell.*

Subsequently, Dutch and German pottery was largely imported into this country; and the cleanliness and beauty of the material no doubt led to the manufacture of a peculiar English ware known as Elizabethan, of which very few specimens have been preserved. It is said that this was produced under the immediate patronage of the queen, and chiefly for the use of her nobility; "and although there is no record of the fact, it is supposed that Stratford-le-Bow was the seat of the manufacture."†

One of the most interesting specimens of Elizabethan ware is that preserved at Gloucester, and known as Shakspeare's Jug; having been the property of his descendants, and represented by them as once in the possession of the poet. This jug, which is similar in form to the old Dutch or German ewer, is adorned with well-executed mythological subjects in relief. The pottery, of which it is a good specimen, is confidently presumed to be English, both from its design and execution. It was produced from a fluid paste or "slip," a process which is not known to have been then employed in other countries. Similar objects appear to justify the conjecture that "the workers in metal applied their moulds to pottery purposes, finding their trade injured by the introduction of fine earthenware. The forms, patterns, and designs of the Elizabethan ware, resemble very much the fashion of silver plate made at that period. This kind of pottery is hard, and approaches very nearly to fine stone ware; is of a dingy white colour, and is chiefly enriched with ornaments in relief of quaint figures and foliage." This manufacture was probably maintained during the reign of James I., but it was unable to compete with the increased importations from Holland; and about the year 1630 (temp. Charles I.), some of the Dutch potters established themselves at Lambeth, and for many years carried on a flourishing and lucrative trade; which, although its products are greatly altered, still exists in that locality.‡

Before, however, the Lambeth manufacturers monopolised the supply, various native works, though probably on a small scale, were established, and some of their productions are yet extant. The Strawberry Hill Collection comprised two dull white bottles of English earthenware, small in size, but proportionably great in their rotundity, inscribed respectively with the words "Sack," and "Claret," in blue letters, and the date "1646."

In the Exhibition of Mediæval Art at the Society of Arts in 1850, Lady Stafford contributed two enamelled earthenware dishes; the one presenting, in partial relief, and coloured brown and yellow, the arms of Charles I. and the royal mottoes; and bearing the inscription, "*Thomas Toft :*" and the other bearing the date of 1657, and the portrait of Charles II., who was then in exile.

About the year 1684, earthenware, and even porcelain, were made at Fulham; the famous works of Chelsea and Bow soon afterward followed, and a consideration of these in our next article will lead us to the exquisite productions of our own days.

* Hutchins' "History of Dorsetshire."

† Marryatt.

‡ Amongst the articles thus introduced into common use in England, the glazed "Dutch tiles," used for the decoration of chimneys, deserve a passing notice; as, indeed, they might afford a theme for an amusing and interesting chapter. A remarkable illustration of the state of the ceramic art in England in the year 1635 is supplied by Thomas Heywood, in his "Philocothonista; or, the Drunkard Opened, Dissected, and Anatomised," (4to. London, 1635, pp. 45), a work remarkably characteristic of that era, and evidently the production of a pioneer of the Puritans, who soon afterwards obtained the supreme power in the state. The author inveighs against the intemperance of his age; and in a passage which we quote at length, as bearing immediately or collaterally upon our subject, exclaims, "Of drinking-cups, divers and sundry sorts wee have; some of elme, some of box, some of maple, some of holly, &c. Mazers, broad-mouthed dishes, noggins, whiskins, piggins, cruizers, ale-bowles, kannes; from a pottle" (two quarts) "to a pint, from a pint to a gill. Other bottles wee have of leather; but they are most used amongst the shepheards and harvest people of the country. Small jacks wee have in many ale-houses of the citie and suburbs, tipt with silver; besides the great black-jacks and bombards at the court; which, when the Frenchmen first saw, they reported at their returne into their countrey that the Englishmen used to drinke out of their bootes. We have besides cups made of hornes of beasts, of cocker-nuts, of goords, of the eggs of estriches; others made of the shells of divers fishes brought from the Indies and other places, and shining like mother-of-pearle. Infinite there are of all measures and fashions, modelled of earth, *cotili and dycotili*, single pots and double pots; some plaine, others of many colours; insomuch that the Dutchmen have removed their furnaces hither, and driven a great trade; as if our own nation and soyle could not either afford us earth and clay enough, or workemen sufficient, to maintaine our ryotts. Some I have seen made in the forme or figure of beasts; as of doggs, catts, apes, and horses; others of fishes, as dolphins, &c.: but the most curious and costly, either for workmanship or metall, are brought from China. Of glasses to quaffe in, the fashions and sizes be almost without number;" and after adverting to these, the advocate of temperance alludes in similar terms to the great variety of plate kept "in every taverne," and by "private householders;" so great in its amount and value, that "divers of good experience and judgment have been of opinion that the plate did much outvalue the coyne in the kingdom."

PLATE XC.

CABINET IN OAK, WITH BRASS PANELS,

DESIGNED BY A. W. PUGIN, EXECUTED BY J. G. CRACE OF LONDON.

There must always exist a considerable difficulty in adapting the conventionalities of the style of a bygone age to objects which serve the purposes of modern luxury and convenience; we think, therefore, that much credit is due both to the designer and the fabricator of this elegant piece of furniture. Mr. Crace has shown, by the careful execution of Mr. Pugin's design, that his knowledge of the detail of the mediæval styles is not inferior to those general attainments he has long exhibited in the numerous instances of elegant modern decoration executed under his direction.

Any inquiry into the forms of the furniture in use among the inhabitants of this island for the first eight centuries of the Christian era must be entirely fruitless, from the absence of any remains of the articles themselves, and from the want of contemporary illuminated MSS.; and it is not until the Anglo-Saxons had become thoroughly civilized and united into one kingdom that we receive much information respecting them. From that time, however, we are assisted in our inquiry by numerous drawings in the MSS., and frequent notices in contemporary authors. From these sources we gather that the most common form of chair among our Saxon ancestors resembled the camp-stool of the present day, the extremities being frequently carved into the form of the heads and feet of chimerical animals. These stools or chairs, if we may trust the illuminations, were often gilt, and ornamented with small raised circles. Another variety of make was not unlike the modern chair, but was more solid, and enriched with perforations or paintings in the forms of small windows, squares, circles, &c.*

Most of the chairs and seats had cushions covered with the beautiful embroidery for which the Anglo-Saxon ladies were famous; also hangings, or wahrift, were worked for the walls of the principal chambers; and in the heroic poem of Beowulf, the "web variegated with gold," which shone on the walls, is particularly mentioned. Curtains were also used to the state beds, which had frequently a roof not unlike that of a house. The more common ones resembled the modern crib, but were quite close to the ground.

The tables were very like those now in use. In the Harl. MS. 603, one is represented of a circular shape, supported by three classic-looking legs, each consisting of an animal's head, finishing at the extremity with a claw. We find that the tables were occasionally made of the precious metals, and one is mentioned as being executed in silver by one Ethelwold, in the reign of Edgar, valued at the then enormous sum of 300*l.*

The twelfth century presents us with little or no variety in the furniture; the chairs and tables retained the same forms, and the best contemporary representations of the former are to be found in the ivory chess-men discovered in the Isle of Lewis, and now preserved in the British Museum. Fitzstephen, Thomas à Becket's secretary, tells us that he had his hall strewed with fresh rushes in summer, and clean straw in winter, in order that those guests who could not find place at his table might not soil their clothes by sitting upon the floor; and again we are told that the four knights who murdered the archbishop went into his palace and sat down upon the rushes. It is rather singular that no illumination representing the interior of a room ever shows

* In the Cottonian MS., lib. B 5, a splendid seat is represented, capable of containing three persons; the back is solid, and is decorated with small square windows; the seat is covered with rich tapestry, and the ends finish with carved animals at least three feet six inches or four feet high. The habit of painting the circular rails, &c. of furniture with small windows obtained to a comparatively late period; and the modern bedsteads, made in what is called bamboo pattern, are probably only the descendants of this Anglo-Saxon fashion.

these rushes or straw; but there can be no doubt that the practice obtained down to the time of the civil wars of Charles I., or even later.

In the thirteenth century the old Saxon fashion of hanging the walls with tapestry had fallen into disuse; the chambers were wainscoated, and often historiated with some well-known subject, such as the "Geste of Antioch," or the "Siege of Troy;" or with subjects from the Bible, as in the case of the Painted Chamber, the remaining parts of which, a few years ago, presented us with the stories of Elisha and Judas Maccabæus.

Occasionally we are told of rooms being both wainscoated and painted; it is probable that in such cases the wainscoating formed a dado, about five feet high, and the pictures occupied the wall-space above.

Many of the articles of furniture, of this and the succeeding century, were exceedingly simple in form, and were ornamented with paintings, generally heraldic; but often, as in Italy, with historical subjects. In that country a great number of these domestic pictures have been preserved; but, with the exceptions of those on the reredos and sedilia in Westminster Abbey, and in one or two other localities, every one executed in England has disappeared.

About this period the chest, or *ark*, became an important piece of both domestic and ecclesiastical furniture, and, together with a large arm-chair and a bedstead, often formed the whole contents of the bedrooms, even of the most wealthy. So great was the demand for these chests, that their manufacture became eventually a separate trade, and the prevalence of the surname of *Arkwright* testifies how large a number of artizans were once engaged in it. Many of our churches contain ancient chests of the rudest construction, braced by many a strap of iron, and secured by five, six, or even seven padlocks. These chests are probably of the beginning of the thirteenth century, or even earlier; and as they, for the most part, show their massive framing, it may not be unsafe to conclude that some of the external covering has been stripped off. The paintings in the windows of Chartres Cathedral exhibit the tradesman as keeping his goods in a chest; and when required to exhibit his wares to customers, he is represented unlocking it and taking out, one by one, the articles demanded. The wood-work was generally plain, and covered with ornamental iron-work. Occasionally, however, we meet with rude attempts at carving, as at Clymping, in Sussex. Sometimes the chests were painted inside as well as out, as seen in one at Newport, in Essex,* where the interior presents us with five figures of saints, while the exterior has been painted of a chocolate colour, with ornaments of gilt lead inserted.

In the fourteenth century we are able to obtain more information on our subject from contemporary writers, and we have even one or two of the articles of furniture remaining. The most important of these is the coronation-chair preserved in Westminster Abbey. Originally made by order of Edward I. to contain the celebrated stone on which the Scotch kings had been crowned, it is to be considered more as a piece of ecclesiastical furniture than as intended for domestic use. Accordingly we find it covered with bold, though delicate tracery, accompanied with a profusion of mouldings, and the gilding with which it is enriched is relieved with diapers and ornaments of the most elegant forms. There can be no doubt but that most of the superior class of furniture required for the royal palaces was gilt in a similar manner, which, in addition to the heraldic decorations so prevalent at that time, must have produced a very gorgeous effect. Many of the thrones represented in the MSS., and on the walls of St. Stephen's Chapel at Westminster, appear to be very rich, but they follow the type of the coronation-chair, with additional enrichment. In Shaw's book of ancient furniture, we are presented with a representation of a chair of state, which formerly appertained to the Abbot of Evesham. The elbows and lower parts appear genuine, and belong to the early part of the fourteenth century, but the back must probably be referred to a later period.

About the beginning of the fourteenth century trestles came very much into use, being found much more convenient than large tables. The latter were only employed when the space they occupied was not likely to be wanted for other purposes. Thus there is an exceedingly fine circular table in the Chapter House at Salisbury. Of the other furniture of this epoch, contemporary illuminated MSS. furnish us with representations of immoveable chairs of state, and reading-desks of the most cumbrous and inconvenient construction; but it is probable that in this, as in other cases, the illuminator has exaggerated the objects he has drawn. The furniture of an ordinary room consisted of but few pieces, and those very simple. A great bench before the fire, and a continuous seat round the room, supplied the place of the numerous chairs found in a modern apartment; while a board upon trestles, and, perhaps, a buffet covered with drapery, with some hangings on the walls, completed an interior of the reigns of the three Edwards. In subsequent notices we propose to pursue this historical sketch.

* This chest has been published in No. XI. of the "Journal of the British Archæological Association."

PLATE

DALZIEL DEL.

W. GIBBONS IMP.

J. BEDFORD LITH.

TABLE COVERS FROM DESIGNS BY MISS A. CAREY,

EXHIBITED BY H. & T. WOODS OF LONDON.

PUBLISHED BY APPOINTMENT TO HER MAJESTY THE QUEEN

PLATE XCI.

PRINTED TABLE-COVERS,

FROM DESIGNS BY MISS A. CARY, EXHIBITED BY H. AND T. WOOD AND CO. OF LONDON.

We have in other articles described the processes of spinning, weaving, and embroidering, involved in the production of the muslins and kincobs of India, the shawls of Cashmere and Paisley, and the silks of Spitalfields:—on the present occasion we shall add to our notices of textile fabrics by alluding to the ordinary woollen goods of the country, and to the application to them of the art of colour-printing, of which the subjects engraved in our plate offer such agreeable specimens. The history of the woollen manufacture would afford us matter for much interesting comment. We can, however, only remark here, that it appears to have been known to the Romans during their empire in Britain, and that although it was probably continuously practised, the records of the trade are very slight till we reach the thirteenth century. The manufacture of broad-cloth was certainly established in England soon after the year 1200. So much superior, however, were the productions of Flanders to those of this country, that the former were very generally imported, even when made, as was often the case, of wool grown in England. In the fourteenth century, Edward III. invited the Flemish weavers, fullers, and dyers to this country, where they settled in large numbers, and in various localities; and from that time to the present the woollen manufacture has formed one of the principal fields of our native industry. Wiltshire, Gloucestershire, and Somersetshire were famous for their fine cloths at a very early period; particular branches of the trade were cultivated in Norfolk and Suffolk; and on its extension into Yorkshire the manufacture gradually received its highest developement, and now reigns supreme in the large and busy towns of Leeds, Bradford, Wakefield, Huddersfield, Halifax, &c.*

In the earlier operations of spinning and weaving, the woollen manufactures present a general resemblance to those of cotton. The process of *fulling*, milling, or felting, which follows that of weaving, is the most remarkable part of the manufacture, and that which gives to cloths their characteristic appearance.

After the greasy matters in combination with the wool have been removed by the action of fullers' earth the cloth is saturated with soap and water, and beaten for two or three days, until the fibres of wool become so locked into each other as almost to hide the intersecting warp and weft threads. The *fulling-stocks*, in which this process is carried on, are hollow receptacles, in which an enormous oaken hammer, or *stock*, vibrates up and down, being kept in motion by machinery connected with a steam-engine. In this operation the cloth is thickened, and at the same time is rendered shorter and narrower. After being dried in heated rooms, it undergoes the process of *raising*. This consists in bringing up the nap, by the application either of wire brushes, or teazle, or thistle-heads, the elastic prickles on the surface of the teazles being found more efficacious for this purpose than any other apparatus. The nap being thus *raised*, either by hand or by machinery, is then cut, cropped, or sheared, to an even surface; and to this process, formerly entirely done by hand, machinery is now also applied. Many other minor operations, into which our limits preclude our entering, are necessary to the perfection of fine woollen goods; and the beautiful fabrics, the production of which reflects great credit on the

* Many absurd and conflicting laws, affecting the growth and manufacture of wool, were passed by the legislature in the sixteenth and seventeenth centuries; among others, a statute in the 30th of Charles II. directing that all persons should be buried in woollen shrouds.

enterprise and skill of Messrs. Wood and Co., have been coloured by a process in most respects analogous to that of calico-printing, of which beautiful and scientific process, so far as it applies to woollen goods, we now propose to offer a brief account.

As cotton goods are bleached before printing, so woollens are carefully scoured; these operations adding greatly to the ultimate effect of the colours employed. "There is, perhaps," Mr. Dodd remarks, "no other operation throughout the whole circle of the manufacturing arts, requiring so extensive a combination of taste, chemistry, and mechanism, as the printing of woven fabrics." A remarkable proof of the scientific skill required in this art is afforded by the various degrees of chemical affinity which wool possesses for different dyes, whether applied in the yarn or in the piece. That all wool does possess a considerable degree of such affinity, is now generally admitted. Mr. Robert Hunt observes* that silk, wool, and cotton, are all found, on microscopic observation, to be cellular in the structure of their fibres. In these minute cells the dyes to which they are subjected are lodged. "Some writers," he adds, "regard the coloured particles as only mechanically fixed in the cells. Others regard their mutual adherence as chemical, and consider affinity as the bond of union." A learned writer on the subject of dyeing† informs us that "wools present remarkable differences in their aptitude for combining with dye-stuffs, dependent upon the different structure of the imbrications of the filaments. The colouring particles seem to insinuate themselves at these pores with greater or less facility, and to be retained with greater or less force, according to the magnitude and form of the orifices. This difference in dyeing, therefore, is not due to the repulsive action of fatty matter, as has been commonly supposed, since it exists in wool, even when every particle of grease has been removed from it by alcohol and ether." The same writer observes that "Bergman appears to have been the first who referred the phenomena of dyeing to chemical affinities."

Another important scientific element in printing textile fabrics in varied colours is to be found in the fact that few dyes are capable, by themselves, of imparting their tints with the necessary durability. Other substances called *mordants*, are required to render the colours *fast* as well as brilliant; and these, even though colourless themselves, possess the power of modifying the colour of the dye or of producing different tints from the same colouring matter.

Besides *colours* and *mordants*, other liquids or mixtures, termed *dischargers* and *resists*, are used in colour-printing. *Dischargers* are used, as their name implies, to remove the colour from any part of the fabric after it has been printed. Thus, a fabric being saturated with a mordant, certain parts are printed with a discharger. The dye being then applied, it is at once fixed where the mordant is unaffected, but becomes a *loose* colour, capable of being easily washed out, where the discharger has been printed. *Resists* equally produce white patterns, but on a different principle. "The mordant is printed (not dipped) in those parts which are to be coloured in the pattern, while those which are to be kept white are previously printed with a chemical mixture, known as a *resist*, or *resist paste*. The cloth is then wholly immersed in a dye-vat, but those portions which have been printed with the resist refuse to receive the dye, and hence remain white."

Reserving for a future article some account of the mechanical processes of colour-printing, we may, however, at once observe, that in table-covers similar to those engraved, flannels, druggeting, &c., the size of the objects renders large patterns necessary; and as these do not admit of the "repeats" commonly adapted to the copper cylinders applied to calico-printing, articles of this description are generally block-printed. Although colour-printing is of recent application to woollens, it has been brought, as our present specimens will prove, to great perfection, and at a very low price. The printed table-covers formerly in use in this country were mostly produced at Leeds, and presented gold patterns upon green or blue grounds; being, in fact, simply discharges upon either green or blue cloth. Articles of the description which we now engrave were first produced in France, and, until the year 1837, Messrs. Wood and Co. imported them from Paris. In that year, however, they began to print them in this country, and their productions have entirely superseded the importation, being found so much superior in their designs and printing, and in the quality of the cloth, that for some years past Messrs. Wood and Co. have exported them to various parts of the world. The cloth used for the specimens engraved was manufactured expressly in Yorkshire; the patterns were designed by an ingenious young artist, Miss Annie Cary, of the Female School of Design, London, and printed, under the directions of Messrs. Wood, by Mr. Thos. Welch, of Merton, Surrey.

* "Hand-Book to the Great Exhibition," 12mo. 1851.

† In the "Penny Cyclopædia."

PLATE XCII.

SHAWL BORDERS,

BY J. AND A. ROXBURGH OF PAISLEY.

The manufactures of Paisley, both in their past and present state, are full of interest to the student of productive and commercial progress, and to all interested in the application of the true principles of art to the native industry of Britain. The history of the trade of the town displays, in a striking manner, the energy and enterprise of our northern fellow-subjects, and is eminently deserving of a brief record in our pages. The union of Scotland with England, in 1707, appears to have given the first impulse to the trade of Paisley; which, even before that era, had comprised coarse chequered linen cloths and handkerchiefs, with some imitations of striped muslins, locally known by the name of "Bengals." These were sold in various parts of England by pedlars, some of whom amassed considerable profits, and, settling in Paisley, soon produced a number of lighter goods, including a variety of lawns, both plain, striped with cotton, and ornamented with different figures. About the year 1730 an extensive manufacture of linen thread was commenced in the town. This, under the name of "ounce-thread," or "nun's-thread," long maintained great popularity; and when the use of cotton became general, the Paisley manufacturers, turning their attention to the spinning of thread from that material, succeeded in establishing a large manufacture of cotton yarn. Thread, to the amount of 100,000*l.* sterling in value, is now produced in Paisley; yet, as we shall hereafter have to observe, the town receives large quantities of a different description from Yorkshire.

About the year 1760 the Paisley manufacturers commenced a bold and successful competition with those of Spitalfields, in the production of a kind of silk gauze, which became so exceedingly fashionable as to supersede the produce of the London firms; several of which actually removed their works to Paisley. About 1785 the popularity of these goods declined, mainly in consequence of the reduction in the cost of cotton, which followed the introduction of Arkwright's spinning machinery; but the manufacture was partially revived forty years ago, and is still in some demand.

The decline of the silk-gauze trade compelled the manufacturers of Paisley to direct their efforts to that which long remained their chief produce, and still occupies much of their attention,—namely, the manufacture of fine muslins. For these they have acquired great celebrity; the fabrics they produce from the justly celebrated yarns of Lancashire are chiefly designed for the London market, and are of first-rate excellence. The decoration of these works, by tambouring and embroidering, has latterly afforded much employment to the females of the town. As a proof of the importance of the trade of Paisley in the last century, we may observe that the value of its products in the year 1784 was 579,185*l.*, and in 1790, 660,385*l.*

Various, however, and important, as are the fancy goods produced in this town, the manufacture of shawls is by far the greatest of them all; and to this we must now limit our remarks. Introduced at the beginning of the present century, it has since steadily increased and is celebrated throughout Europe. It is estimated that in the year 1834 the value of the shawls manufactured in Paisley amounted to no less than one million sterling, and it is now much greater. According to the "New Statistical Account of Scotland," published in 1837, the number of looms in the town was about 6000; of which 5700 were employed by the resident manufacturers, and 300 by Glasgow houses. In addition to these, 2000 looms were worked by Paisley

capital in the villages in the neighbourhood. The number of weavers, at the same time, comprised 5350 "harness" or pattern weavers, 650 plain weavers, and numerous apprentices and females, making a total of nearly 6100.*

The shawls produced at Paisley are of various kinds: silk, woollen, and cotton materials are employed, both separately and in combination; and these embrace imitation Cashmeres, barège, damasks, crapes, printed and embroidered; plain, figured, and tartan scarfs; and long and square shawls. Those most characteristic of the locality are probably the shawls made entirely of fine wool, or in which wool forms the principal material.

The genuine wool of the Cashmere goat (chiefly spun in France) has been applied to the manufacture of shawls at Paisley, and is still so employed with some success; but not such as to approach the excellence of the Oriental productions.† The worsted yarns of Bradford are universally celebrated for their excellence. These (dyed before weaving) are very largely used in Paisley, for the figured centres and borders of shawls. The taste and skill of the Paisley manufacturers are chiefly applied to the design and execution of elaborate and beautiful borders, such as those which we now engrave; and these are often woven in a broad web, comprising several repetitions of the pattern; which are afterwards cut asunder, and sewn on to the centre portion by females.

In reference to the preparation of the wool for these beautiful productions we may refer, by way of contrast, to our remarks on the Plate (XCI.) immediately preceding the present. We there described the manufacture of wool of a short fibre into milled and felted fabrics, and intimated that wool possessing a longer staple was necessary for such works as those now under our consideration. In these the fulling-mill is dispensed with; and, before it is spun, the wool is carefully combed, so as to deprive it of its feathery appendages, and to approximate it to the nature of silk or cotton. Even in the spinning, a different kind of machinery is required from that necessary for woollen fabrics, properly so called. The fine woven woollen stuffs of which shawls are made, form a branch of the general class of "worsted" goods; which, after weaving, require only a final dressing by the shearing machine, as a finish to the texture, or rather of the surface.

Much of the weaving executed at Paisley is performed by the Jacquard loom; which machine, in connexion with our notices of silk-weaving, we shall advert to particularly in a future article; but the hand-loom weavers of the town constitute a large proportion of the population. Mr. Dodd informs us that the hand-looms are arranged, six or eight in a room, on the ground-floor of many houses in the town. These are the property of individual weavers, who pay a weekly rent for the use of a portion of the room; or, as it is termed, for a "standing." In other cases, all the looms in an apartment belong to one person, who lets them for use to the poorer class of weavers. The fluctuations of demand have, at times, caused much distress amongst the operatives of Paisley; and such calamities have been often brought under the notice of the public. Even now a large number of the hand-loom weavers of the town are about to emigrate to Australia.

With reference to the shawl-patterns generally used by the manufacturers of Paisley, some evidence was given by several of those gentlemen before a Select Committee of the House of Commons on "Schools of Design," in the year 1849. It appears that, independently of the Oriental patterns, which were generally recognised as the most tasteful and effective, the best "Cashmere" patterns (so called) were obtained from France; and that the local designers were chiefly occupied in copying from and rearranging them. The necessity for greater novelty and variety of design was freely acknowledged by the witnesses, and anticipations of much benefit from the then newly-established School of Design in the town were confidently expressed.

That these anticipations have been in some measure realised, we may infer from the works contributed by no fewer than sixteen Paisley manufacturers to the Great Exhibition of all Nations. These comprised Cashmere, barège, crape, and tartan, shawls and scarfs; woven, printed, and embroidered; plain and fancy muslins; merino dresses, and a variety of other fabrics, which fully sustained the high and deserved reputation of this interesting emporium of North Britain.

* Mr. Dodd ("British Manufactures," 1844) gives the numbers employed "in the shawl manufacture," about a year before that time, as follows:—4000 pattern weavers, 1000 plain weavers, 3000 or 4000 "drawboys," or assistants; besides 4000 or 5000 weavers in Bradford and its vicinity, engaged in preparing the plain centres of shawls.

† See former articles on Cashmere shawls. We may here advert to the Cashmere goats kept by H.R.H. Prince Albert in Windsor Park. Some interesting fabrics, in part manufactured from the wool of these animals were included in the Great Exhibition of last year. These were described in the Catalogue as two brocaded dresses, in which the weft was of Cashmere wool, and the warp of silk; and two shawls, with a specimen of coarse cloth, entirely manufactured of the wool.

L. H. MICHAEL DEL.

W. DERBY WYATT DIREXT.

STATUETTE IN IVORY, AND OBJECTS IN GOLD AND SILVER
BY FROMENT MEURICE OF PARIS.

LONDON PRINTED FOR THE PROPRIETORS BY DAY & SON, LITHOGRAPHERS TO THE QUEEN.

PLATE XCIII.

GROUP CARVED IN IVORY,
AND OBJECTS OF GOLD AND SILVERSMITHS' WORK,

EXHIBITED BY FROMENT-MEURICE OF PARIS.

The name of the distinguished manufacturer by whom the objects we engrave have been produced, has become proverbial in France as a guarantee for the highest class of workmanship in the precious metals. Worthily, indeed, has he sustained the reputation acquired for his country in that branch of art, by Launay, Ballin, Grossier, Germain, and others, in the reigns of Louis XIV. and XV. In the French Exposition of the year 1839, M. Froment-Meurice obtained a silver medal; and the honours of the gold medals which he received in 1844 and in 1849, have been crowned by the award of a Council Medal in the Great Exhibition of all Nations in 1851.

In the "Report" of the Exposition of 1844,* the career of this distinguished artist is traced by the Vicomte Hericart de Thury, the reporter to the jury appointed to examine the products of the jewellers' art; who observes that the whole life of M. Froment-Meurice has been devoted to the especial study and cultivation of his art. Hence, we are told, he has been enabled to place himself at the head of the French jewellers, and to become, as in the age of the Renaissance he would probably have been styled, a "Master Silversmith of the first rank." Destined from his childhood to succeed his father, in an establishment formed at the end of the last century, he followed in his boyhood a severe course of study, both in drawing and modelling. He examined with avidity the relics of the great masters of the time of Michael Angelo, Ghiberti, and Cellini, and completed his education by a long apprenticeship to a practical chaser. Thus, from an early age, he was accustomed both to conceive and to execute. Wagner was his model, and at the same time his rival. Like Wagner, he drew his inspirations from the best works of the fourteenth, fifteenth, and sixteenth centuries; and like him he gathered his ideas from the rich and precious collections of the museums of Charles X., of the Bibliothèque Royale, of M. du Sommerard, of M. de Bruges, and others. As a draftsman and an experienced manufacturer, the merits of M. Froment-Meurice were recognised by the Silver Medal of 1839, but since that period his progress has been remarkable; and, assisted by the first sculptors, chasers, and architects of France, he has attained a double end: first, in recording, by his own important works, the talents and the processes of the ancient masters; and, secondly, in so applying beauty of style to the setting of jewels of every value, as to bring the graces of his art within the reach of ordinary citizens.

It may be regarded as a result of his success in the Exposition of 1844, that M. Froment-Meurice obtained the appointment of silversmith to the town of Paris, and was selected to co-operate with MM. Gatteaux, Paul Delaroche, and Visconti, in superintending the execution of the sword of the Comte de Paris. Other orders of the most important kind flowed into his workshops; and his business, which in 1839 had given employment to only twenty-five workmen, and realised only 200,000 francs per annum, had, even in 1844, extended itself so greatly as to give occupation to eighty artizans of the highest class, and to produce an annual return of no less than 640,000 francs. Excellent, however, as the commercial position attained by this artist had become, it could scarcely be expected to exempt him from the troubles which, in the year

* Vol. iii. p. 167.

1848, produced such disastrous consequences to the industrial arts of France. From these, indeed, he suffered very greatly. Many of the principal commissions which had been entrusted to him were withdrawn; and, but for the assistance of some noble and enlightened patrons—especially of the Duc de Luynes—his operations must have been perfectly paralysed in that eventful era.

The contributions of M. Froment-Meurice to the Great Exhibition prove, however, how vigorously he struggled with and overcame these difficulties; and of all that brilliant display, the objects we now engrave, if not the most important, were certainly among the most elegant and pleasing. In the ivory group, representing a Nymph pursued by a Cupid, the talents of M. de Triqueti have been admirably brought to bear. This artist has acquired an extensive reputation by his bronze gates to the Madeleine, and in the production of numerous vases and other small objects he has displayed great originality of composition, and a deep study, not only of the antique, but of the best masters of the Renaissance. His style of chasing differs essentially from that of Ghiberti and Sansovino, and recalls the singular boldness of the manner of Pollaiuolo, Verrocchio, and Donatello. A comparison of this group with that executed by the celebrated and lamented artist Pradier, for the benefit of the poor of Paris (also exhibited by M. Froment-Meurice), certainly tends to the advantage of M. de Triqueti, and it would be almost impossible for any artist to surpass the refinement of execution which characterises this delightful work. The style of modelling and sharpness of treatment remind one forcibly of the exquisite little terra cottas of Clodion.

The salt-cellars shown in the Plate are selected from a set representing the Seasons, executed for the Duc de Luynes. The other objects are specimens of the ordinary workmanship of this great Parisian goldsmith.

Among the other works of M. Meurice, we must allude to a remarkable silver toilet-table, ornamented with sculpture, carvings, enamels, and precious stones, and presented by subscription to H.R.H. Louisa-Maria-Theresa of France, on her marriage with Charles-Ferdinand de Bourbon, the Infante of Spain and Hereditary Prince of Lucca. In the production of this object, all the most able artists employed by M. Froment-Meurice have concurred; and, besides the name of that gentleman himself, we find among them those of MM. Feuchères, Geoffroy, and De Chaume: the ornaments were executed by the celebrated wood-carver and designer, M. Lienard, and the enamels (from the designs of M. Feuchères) by MM. Solier and Meyer, of Sèvres. The centre of a table, executed for the Duc de Luynes, was ornamented with a group which, not only from its intrinsic beauty, but from the peculiar processes involved in its execution, was a most remarkable specimen of modern silversmiths' work; and, as such, we hope to allude to it more particularly hereafter.

Not content with his command over the precious metals, M. Froment-Meurice has also shown his ability to raise the value of iron, by the application of artistic design, so as to rival that of the more costly materials; and the highest perfection of smiths' work in miniature was displayed in the elaborate jewel-case in wrought iron executed for the Comte de Paris. It would appear impossible to surpass the excellence of our artist's work in personal jewellery, in which he has revived many of those graceful forms exhibited in the celebrated productions of Le Petit Bernard, Gilles l'Egare, and Toutin.

It is always gratifying to meet with an acknowledgment, on the part of eminent manufacturers, of the assistance derived from those who have co-operated with them in the execution of their finest works. Thus M. Froment-Meurice brought before the notice of the jury of 1849 the merits of his foremen, MM. Babeur and Wisset, as well as of MM. Fremonteil and Croville, who were originally his apprentices, and had been constantly employed in his manufactory for twenty years. The chasers, who executed the figures in *repoussé* for the Duc de Luynes, were MM. Muleret, Alexandre Daubergne, Fannière, and Poux. Three of these gentlemen received their education in the *atelier* of M. Vechte, whilst M. Fannière is a nephew and pupil of the celebrated Fauconnier. M. Solier, the enameller, has given proofs of the greatest talent, and M. Lienard has largely contributed to elevate the taste of French industry.

To the particulars already given of the establishment of M. Froment-Meurice, we may add that, in 1847, he employed 120 workmen, whose daily earnings varied from four to ten francs, whilst his business produced 1,100,000 francs in the twelve months. It is to be hoped that the restoration and continuance of tranquillity in France will compensate him for the anxiety and losses which he has sustained from its interruption.

A DESIGN FOR A PANEL

WORKED IN BRASS WIRE AND INLAID IN BRASS BY BAILEY & CO OF LONDON

PUBLISHED BY BAYNES LITHOGRAPHERS 9 ST JOHN

PLATE XCIV.

AN OPEN-WORK PANEL,

CAST IN BRASS BY BAILEY AND CO. OF LONDON.

The firm, of whose productions we now engrave a pleasing specimen, has long been well known for the taste it exhibits in ornamental metal-work. Among Messrs. Bailey and Co.'s contributions to the Great Exhibition, were many of great excellence, and we may particularly commend the hall-stove which was placed in the nave of the building, and the grates and door-fittings exhibited in the Hardware department. Their specimen of ornamental railing in the Fine Arts Court was unquestionably one of the best pieces of metal casting in the whole collection.

The beautiful metal commonly known by the name of brass, appears to have been in use from the earliest ages. It is composed of copper alloyed with zinc, and is to be carefully distinguished from bronze, in the composition of which the copper is alloyed with tin. It is remarkable that zinc, as a distinct metal, was only produced at the end of the last century, whereas the ore known by the name of cadmia has long been, and is still, employed for the purpose of gardening and alloying the pure copper. This cadmia, or lapis calaminaris, was obtained from mines worked expressly for its production; of which the most famous, the Sallustian, in Savoy, and those called the Livian in Gaul, were already exhausted in the time of Pliny, and the ore was obliged to be procured from Spain.

Copper is generally designated in ancient languages by the same word as that applied to its various alloys. We are, therefore, placed in great doubt whether the vessels of the Tabernacle and of Solomon's Temple were manufactured from copper, brass, or bronze. The same uncertainty prevails with the Greek Χαλκος, and the Latin *Æs*. The Romans, however, appear in the time of Pliny to have distinguished brass by the title of *aurichalcum*. This metal was much less used than bronze, and Procopius informs us that it was almost equal to silver in value; which probably arose from the difficulty of procuring the cadmia.

The earliest mention of brass is to be found in the sacred writings, where we read in the book of Genesis that Tubal Cain was the "instructor of every artificer in brass and iron;" and although the word here used in the original might only allude to copper, Josephus distinctly states that Tubal Cain first invented the art of making *brass*. The same author also tells us, that the plates with which the altar of burnt-offering was overlaid were as bright as gold, — a fact which would appear to indicate an alloy of copper not unlike pinchbeck, and disproves the idea that mere copper is intended. The casting of the brazen laver must have been a work of some magnitude; the staves of the brazen altar were also overlaid with brass, and the majority of the vessels used in the Temple were formed of this metal. The artists employed in these works were Bezaleel of the tribe of Judah, and Aholiab of the tribe of Benjamin: their knowledge of their craft was probably acquired in Egypt. This knowledge must, however, have been subsequently lost or greatly diminished, as we find that Solomon, when furnishing the Temple, obtained the services of the Tyrian Hiram, whose father, we are told, was a worker in brass. Under his directions were cast the Molten Sea, and the two great brazen pillars, Jachin and Boaz.

About the same time Homer sings of the χαλκοχιτωνες Αχαιοι, or, as it is generally translated, "the brass-clad Greeks;" and from the whole of his poems we may infer, that although the use of iron was known and taken advantage of for agricultural implements, yet the armour and arms, as well as most of the cutting instruments, were made of some alloy of copper. If we may credit Hesiod, the use of copper or bronze was anterior to

that of iron. We may here specially notice the celebrated Corinthian brass. According to Pliny, this alloy was discovered by the accidental mixture of molten metals during the sack of Corinth by the Roman Consul Mummius, 146 B.C.; but it was probably a species of bronze, into the composition of which the precious metals largely entered. The particular character of this metal must, however, remain a matter of doubt, as no specimens of it have come down to us; and the same author relates, that at the time he wrote the art of making it was already entirely lost.

The various weapons and instruments of our British ancestors appear all to have been made of bronze, not brass; and, indeed, we hear but little of the use of the latter metal until we come to the middle ages.

In the beginning of the thirteenth century the manufacture of brass was extensively, if not exclusively, practised by the people of Flanders, by whom it was exported in large plates of various thicknesses. These were occasionally melted, and the metal converted into domestic utensils and ecclesiastical furniture, but by far the greater portion were used in the shape in which they were imported. One important way in which they were employed was for those sepulchral monuments which are even now frequently met with in our country churches. The earliest of these of which we have any record is that of Simon de Beauchamp, earl of Bedford, A.D. 1208; this, however, has long since been destroyed, and the tomb of Sir John d'Aubernon, A.D. 1277, is now the first of a long series of monumental brasses, which reach down to the time of Charles II., or even later. It may, perhaps, be taken as a corroboration of the statement that all this "latten," or brass, was imported, that these monumental slabs abound chiefly in the southern and eastern parts of England.

"The effigies of gilded yellow metal existing in Westminster Abbey—the memorials of Henry III. (1272), and Queen Eleanor (1298)—are not less remarkable for skilful execution than tasteful design. Mr. Hunter, in his paper on the honours paid to the memory of Eleanor ('Archæol.' xxix. 191), has shown that these were the work of Master William Torel."*

"The finest existing effigy of the fourteenth century is that of the Black Prince at Canterbury (1376), formed of gilded latten, cast, chased, and partly enamelled. Of all these statues excellent representations have been given by Stothard. The fine figures at Westminster of Richard II. and Anne of Bohemia, of which engravings are given in Hollis's 'Monumental Effigies,' were cast and wrought in England, as appears by the contracts with Nicholas Broker and Godfrey Trest, citizens and coppersmiths of London, dated 1395, which minutely describe the rich metal decorations of the tomb."†

Brass was much employed in the manufacture of ecclesiastical furniture; thus, as early as the middle of the thirteenth century, Henry III. ordered a brass lectern to be made for the Chapter House at Westminster, similar to one already existing at Salisbury. A considerable number of these lecterns are still to be found in various parts of the country; but they are more frequently met with in the eastern than in the other counties. Their shafts appear to have been cast and then turned in a lathe, and the eagles were finished up with the chisel or graver. A great number of the common reliquaries, monstrances, crosses, and other sacred vessels, were made of very thin latten, and afterwards gilt; and when well executed, they can scarcely be distinguished from the works in the precious metals.

The principal places whence this latten was imported were Bruges, Namur, Liege, Ghent, and Cologne.‡ In all these cities, and, indeed, throughout Belgium, the churches are rich in brass fonts, lecterns, screens, sconces, candelabra, and sepulchral slabs, which have once contained brass effigies. Some of the fonts are of a very early date; that, for instance, in the Museum at Brussels, is said to have been a present from Charlemagne to the church at Tirelemont; others are as late as the middle of the seventeenth century.

The art of making brass was not introduced into England until the middle of the seventeenth century; previously to which time, however, this country had become famous in the casting of brass cannon, which art probably gave an impetus to the manufacture of brass from calamine. The metal continued, notwithstanding, to be imported for some time after its manufacture was introduced, as we read of laton being one of the articles imported in 1638 by the company of Merchant Adventurers. The tables are now completely turned, and England has become the great exporter of brass, and articles manufactured at Birmingham are to be found in every quarter of the globe; the trade of the Flemish towns being, for the most part, restricted to their own country.§

* "A Glossary of Terms used in Classic, Italian, and Gothic Architecture." Parker, Oxford.

† Rymer, vii. 797.

‡ The ornaments of the Beauchamp tomb, Warwick, were to be "of the finest laton," and the plate beneath the figure was to be made of "the finest and thickest Cullen (Cologne) plate."

§ For particulars of the Birmingham brass manufacture, see Article on Plate XLIII.

PLATE XCV.

PAPER-HANGING,

BY TOWNSEND AND PARKER OF LONDON.

In our notices of Plates XLII. and LXXI. we have fully described the tapestry and other hangings which formed the earliest mural decorations in England. The first papers employed were of the kind known as flock papers, in which, as at present made, fragments of woollen cloth, cut into a sort of down, and dyed, are sprinkled over a pattern printed in japan gold size. These appear to have been originally meant as an imitation of the figured tapestries and other textile fabrics previously used for the same purpose.

In the year 1634 Jerome Lanyer (Lainier?) obtained letters patent from Charles I., for a process which he described as "affixing wool, silk, and other materials, of divers colours, upon cloth, silk, cotton, leather, and other substances, with oil, size, and other cements, to make them useful for hangings;" but the earliest accounts of these new hangings do not allude to *paper* as forming the groundwork, nor to any method of printing them from blocks. Some early flock paper-hangings may be seen at Hampton Court Palace, and Mr. Cowtan, who read a paper on this subject at the Decorative Art Society, in 1844, produced a specimen 110 years old.

The coloured paper-hangings of the last century (which imitated paintings, as the flock papers did tapestry) were printed by a process similar to that for hand-block calico-printing. The ground colour having been first laid on, the paper was printed by a series of wooden blocks, each of which applied a separate colour, and the whole together rendered the pattern perfect. This mode is still practised; but in the early history of paper-staining only the outlines were thus printed, the patterns being painted by hand in distemper.

In the reign of Queen Anne (A.D. 1712) a duty of $1\frac{3}{4}d.$ per square yard was imposed upon paper-hangings, independent of the duty on the paper itself; the ultimate effect of which was that none but men of capital could carry on the business, which consequently grew into a monopoly.

In 1754 a Mr. Jackson had established a factory at Battersea, and appears to have attained a high degree of perfection, both in flock papers and colour printing. He published a work, in which he especially advocated the merits of papers of classic design in chiar'-oscuro; and urged the reproduction in that manner of "the most celebrated classic subjects, statues, and landscapes." In fact, as a writer in the "Journal of Design" remarks, "he undertook the execution of imitations of statues—'lively portraitures'—of gods and goddesses, in chiar'-oscuro, on paper." Mr. Jackson reprobated, in animated terms, the imitations of Chinese papers, which had then attained much fashionable admiration. Paper-hangings, we may here observe, have been used in China from the remotest antiquity; and, however grotesque they may be, the lively representations of plants, flowers, birds, butterflies, &c. with which the Chinese hand-work papers are covered, are rarely either inharmonious in colour, or slovenly in execution. These productions were largely imported soon after the establishment of the great trading company of "Merchant Adventurers" to the East; very high prices were given for them at the celebrated China auctions of the time of Queen Anne; and, notwithstanding the remonstrances of Mr. Jackson, the English imitations of them long enjoyed great popularity.

Somewhat later than the time of Jackson, the names of Tootle and Young, Boyle, Graves, Pickering, Hall, &c., are met with as English paper-stainers; and under their care and energy the English papers began to acquire a continental reputation, and a considerable export trade was established. Our goods were forwarded to America, to Spain, and to several other Europane countreis.

In 1786, George and Frederick Echardts established a manufactory at Chelsea, where they produced works of very great excellence. Mr. Cowtan states that "they adopted a method of applying copper plates engraved to form the outlines, and, by an underground of silver and gold, worked up by hand in varnish colours, effects of the most beautiful kind were obtained;" and we are told by Mr. J. G. Crace, joint-reporter to the Jury on these objects in the Great Exhibition, that "works excelling even those of the present day were produced by Messrs. Echardts at Chelsea. Some of the blocks used by them," he adds, "are at present in the possession of the writer of this Report. They have great merit in the designs, and are some of them eight feet in length." These skilful manufacturers printed not only on paper, but also on silk or linen.

Simultaneously with the establishment of the Chelsea works, Mr. Sherringham commenced the business which he so long carried on with remarkable taste, skill, and energy, in Great Marlborough Street. This justly eminent manufacturer (from whose establishment many of the leading decorators of the present time have emanated) is described by Mr. Cowtan as the "Wedgwood" of paper-hangers. He secured the talent of some admirable foreign artists; among others, La Brière, Boileau, Louis, and Rosetti, and infused the highest beauty and grace into the artistic department of his trade. He was the first to produce what are known as arabesque papers with any degree of excellence.

We are induced to believe that the establishment of Mr. Harwood, an equally eminent promoter of this manufacture, might be dated even earlier than the two to which we have just referred. The late Mr. Clarke of High Holborn (to whose talents and exertions we shall have occasion to advert hereafter, in connexion with an article on French paper-hangings), informed us that Harwood, who possessed a large capital, purchased, about the middle of the last century, a business which had been for some time established at Chelsea. He further stated, that whilst Battersea Bridge was in course of erection (or repair) Harwood's labourers turned out on strike, and that the enterprising manufacturer supplied their places by the men engaged upon the bridge, whom he instructed in his manufacture, and kept in profitable employment as long as they were able to work. Harwood originated the papers in which a bronze, or imitation gold, powder is laid on in a similar manner to the flock; and he is entitled to the especial merit of inventing satin-papers, or, in other words, of imparting to the ground of his papers a brilliant white gloss, produced either by a size varnish or by friction. The secret of this process was purchased, about the end of the last century, by Messrs. Bereers, the eminent colour-makers of Hackney, and the colour manufactured by them was used by all the English paper-hangers. Although rivalled by the barytes white, it remains, for all ordinary purposes, unequalled to the present day. Mr. Harwood was succeeded, in the same place, by Messrs. Stevens and Mac Clary; the former of whom retired from the business with a large fortune, and the establishment afterwards passed into the hands of the late Mr. Stuteley, by whom the business was carried on in St. Martin's Lane, where steam power was applied to the machinery with very great effect. Mr. Stuteley introduced a large machine for printing numerous colours simultaneously, on the principle of calico-printing. This has passed into the possession of a firm in Manchester, who apply it to the production of large quantities of paper-hangings.

One of the most effective processes in paper-staining is that known as rainbowing. This is the production of a shaded or blended ground, consisting of graduated tints of a particular colour; and, unlike many of the mechanical improvements introduced from time to time, it is of foreign origin, and was probably first used in Switzerland. Messrs. Clarke and Henderson, of Bond Street, introduced this process into England in 1825; applying cylinders, instead of the handwork process which had before been used in Paris.

About the year 1826 the stencil-plate system of obtaining a continuous line was superseded by what is known as the ruling-trough process; and this, together with bronzing and other English refinements in the art, was introduced to the French manufacturers in 1829 and 1830, by the late Mr. Clarke.

The Government restrictions on this trade have heretofore borne heavily upon it. Besides the duties already referred to, the manufacturers were long charged with an annual payment of 20*l.* for a license. When, however, the duty on paper was reduced, and that on printing abolished, the market was at once thrown open; and innumerable improvements have since taken place, aided to an immense extent by the facility of manufacturing papers of the requisite length in one entire piece. Although the old manufacturers soon retired from the struggle of great competition and small profits, the public has largely benefited; and the general diffusion of taste, together with the excellence of modern manufactures, as evinced in the specimens we have now, and in former numbers, laid before our readers, justify the hope that England may ere long regain its former supremacy in this important branch of decorative art.

AUGTINE DEL

M DIGBY WYATT, DIREXT

F BEDFORD LITH

BOOKBINDING EXECUTED BY J & J LEIGHTON OF LONDON AND DESIGNED BY W LEIGHTON

LONDON, PRINTED AND PUBLISHED SEPTEMBER 1862, BY DAY & SON, LITHOGRAPHERS TO THE QUEEN

PLATE XCVI.

BOOKBINDING.

DESIGNED BY W. LEIGHTON, AND EXECUTED BY J. & J. LEIGHTON OF LONDON.

In our notice of Plate LII. we described the processes of ordinary leather binding, and noticed the early history of that art in England to the days of Roger Payne. That distinguished binder flourished in the latter half of the eighteenth century, and was not only perfect in his handicraft, but showed especial taste in the adaptation of his ornaments to the subject of the works he bound. Some of these, such as French romances, were powdered with *fleurs-de-lis:* his books on chivalry had suitable devices, such as helmets, spurs, and gauntlets; and on poetical works he used a simple lyre. He did all with his own hands; from the folding, beating, and sewing, to colouring his end papers, and making his own tools and letters. One of his bills, which is still extant, has been often quoted as a curiosity. It is as follows:—"Vanerii Prædium Rusticum. Parisius, MDCCLXXIV. Bound in the very best manner, in the finest green morocco, the back lined with red morocco. Fine drawing-paper, and very neat morocco joints inside. Their was a few Leaves stained at the foredge, which is washed and cleand, 0 : 0 : 6*d.* The subject of the Book being Rusticum, I have ventur'd to putt The Vine Wreath on it. I hope I have not bound it in too rich a manner for the Book. It takes up a great deal of time to do These Vine Wreaths. I guess, within Time, I am certain of, measuring and working the different and various small Tools required to fill up the Vine Wreath, that it takes very near 3 days' Work in finishing the two sides only of the Book; but I wished to do my best for the work, and at the same time I cannot expect to charge a full and proper price for the work, and hope that the price will not only be found reasonable but cheap—0 : 18*s* : 0*d.*"

Harley, earl of Oxford, who collected the library which bears his name, usually had his works bound in red morocco, with a broad-tooled border and centre ornament, from which the Harleian style takes its name. Old Johnson, an English binder of the last century, was remarkable for his excellent work, both in calf and morocco. Most of the books in the library of the late Mr. Beckford were bound by Charles Lewis and Kalthœber, a German. The plain morocco work of the latter is excellent. Baumgarten, Staggemeir, Bohn, and other German binders, also distinguished themselves in England. The admirable workmanship of Hering has caused his binding to be justly prized; and the name of Mackinlay also deserves honourable mention. Mr. Clarke, of the well-known firm of Clarke and Bedford, was famous for his "tree-marbled calf." Many of his specimens are of plain morocco externally, but finished with leather joints inside, and sewn with silk upon bands. Some beautiful examples of his partner's skill in rebinding old books are preserved in the Grenville Library. Much of the great improvement which has of late years taken place in book-binding is due to Mr. Hayday, and, as far as execution is concerned, he is faultless. Mr. Cundall, to whom we are indebted for these notices of modern binders, exhibited to the Society of Arts a volume by this artist (in imperial folio), for the execution of which 57,000 separate impressions of tools had been required.

The art of bookbinding attained great perfection in Italy in the fifteenth and sixteenth centuries; and many exquisite works of that era still exist, which are remarkable for the taste and elegance of their scroll-work and other patterns, both in blind and gold tooling, upon white vellum. Roscoe, in his "Life of Lorenzo de' Medici," vol. ii. p. 79, describes the bindings of the manuscripts collected by Piero and Lorenzo.

M. DIGBY WYATT DIREX

TERRA-COTTA FIGURE OF GALATEA & GROUP OF MAJOLICA GARDEN VASES
BY MINTON OF STOKE-UPON-TRENT

PLATE XCVII.

TERRA COTTA FIGURE OF GALATEA, AND GROUP OF MAJOLICA GARDEN VASES,

BY MINTON OF STOKE-UPON-TRENT.

It is now our pleasing task to add another, and not the least beautiful and interesting, to the illustrations we have already furnished of the varied productions of Messrs. Minton and Co. The figure of Galatea, which forms the principal object in our Plate, has been executed in an improved species of terra cotta, adapted to the variable climate of this country. It was modelled under the superintendence of Mr. Herbert Minton, from the design of M. Carrier, a French artist in the employment of the firm; who succeeded M. Jeannest as professor of modelling in the School of Design in the Potteries.

Mr. Minton's imitation of the old Majolica and Navarre wares, as applied to vases, has been already noticed. Our readers will doubtless remember the stove of enamelled tiles in the Mediæval Court of the Great Exhibition, so successfully executed for the Earl of Shrewsbury, from the designs of Mr. Pugin.* His success in that work encouraged Mr. Minton to apply the same kind of enamel to the imitation of the old Majolica garden vases; and the specimens which we now engrave so strikingly evince the taste and manufacturing ability with which this beautiful branch of art has been revived, that it only remains for us to observe that these admirable effects are produced at a much more moderate cost than by the ordinary method of painting.

We take the opportunity afforded by the present illustration to resume the historical notices of English earthenware commenced in the remarks accompanying Plates LXXXI. and LXXXIX.

About the year 1684 a manufacture of earthenware was established at Fulham by a man named Dwight; who not only produced a number of white *gorges*, or pitchers, but vessels and ornaments in transparent porcelain, for which he obtained a patent. The manufactory was afterwards carried on by a Mr. White, one of his descendants.

Whilst this progress had been made in the manufacture of common pottery the porcelain of China had been gradually introduced. The celebrated traveller, Cavendish, presented Queen Elizabeth with some of the first vessels of Oriental porcelain which came into this country. In 1588 her Majesty received from the Lord Treasurer Burghley "one porrynger of white porselyn;" and from Mr. Robert Cecil, "a cup of grene pursselyne," as new-year's gifts. In 1685 Evelyn adverts to saucers, &c., of "porcelan" as in much esteem by fashionable ladies. The increasing import of tea, first introduced in the reign of Charles II., and the establishment of public coffee-houses, were accompanied by so many specimens of porcelain, that in the reign of Queen Anne (1702–1714) the collection and use of that costly material became a fashionable mania. Addison ridicules the passion with the happiest effect in the "Spectator," and as Pope observes,—

> "From silver spouts the grateful liquors glide,
> While China's earth receives the smoking tide."

As this exquisite but fragile fabric continued to increase in estimation, so the ingenuity of English manufacturers led them to attempt its imitation. Early in the eighteenth century, the abortive efforts of Mr. Dwight at Fulham were renewed simultaneously, and with much better success, at Chelsea and at Bow. The ware from those manufactories was composed of Dorsetshire or Devonshire clay, and a fine white sand from Alum Bay, in the Isle of Wight; to which such a proportion of pounded glass was added, as, without

* The tiles by Minton, the iron work by Hardman.

causing the ware to soften so as to lose its form, would give it, when exposed to a full red heat, a semi-transparency, resembling that of the fine porcelain china. Before the year 1698, some such manufacture had existed at Chelsea; though the objects produced were, perhaps, only a kind of opaque glass. That they had increased in importance before 1745 may be inferred from the fact that the promoters of the Royal Porcelain Works of France sought in that year for exclusive privileges, to enable them to compete with English and German fabrics; and in 1778 the porcelain of Chelsea is especially eulogised by Macquer. Mr. Marryatt states in addition that the early Chelsea specimens resemble those of St. Cloud, in the flowing lines and ornaments of the style of Louis XIV.. In the reign of George II. the establishment at Chelsea profited by royal patronage, and attained its greatest excellence from the year 1750 to 1765, under the directorship of an artist named Spremont. A set of china was produced in 1763 for the Duke of Mecklenberg, which, according to Walpole, cost no less than 1200*l*. After the retirement of Spremont the manufactory declined, and the workmen and models were subsequently transferred to Derby.

The porcelain of Bow was mostly confined to tea and dessert sets, and is distinguished by the figure of a bee, embossed or painted on one of the pieces. It was ornamented with quaint devices, flowers, and landscapes, generally in bistre on a plain ground. The works were abandoned about 1720.

The Derby china-works were first established by a manufacturer named Dewsbury, in 1750; and were much promoted by the accession of the artists, workmen, and models from Chelsea. The porcelain of this establishment is "very transparent, of fine quality, and characterised by a beautiful bright blue on the border or edge of the tea-services. The figures are not equal to those of the Chelsea works, but the white biscuit figures peculiar to this fabric rival in beauty and elegance those of Sèvres."

The "Worcester Porcelain Company" was established in 1751, by Dr. Wall, a physician of that city. He appears to have originated the idea of printing upon porcelain, which he carried out with some success. The Museum of Practical Geology contains a mug, presented to the collection by Mr. Albert Way, with portraits of English worthies printed upon it at Worcester; and the same gentleman possesses another interesting specimen, with a portrait of Frederick the Great in armour, printed in black, with remarkable distinctness and precision. The most memorable event in the history of the works at Worcester is the manufacture of hard paste porcelain there by Mr. Cooksworthy, in the year 1768; when that gentleman had discovered the kaolin, or china clay, of Cornwall. His productions in that material are scarce and valuable, as the manufacture was soon abandoned. In 1783 the Worcester works were transferred to Mr. Flight, and have since been carried on by Messrs. Flight and Barr.

At Stepney, near London, and at Coalport in Shropshire, other porcelain works were for a time carried on during the last century, but their productions were not such as to call for notice in our limited space.

Whilst these partially successful efforts in porcelain were being made, the general demand for ordinary earthenware was steadily increasing; and in Staffordshire, where potteries on a small scale had long existed, the trade extended itself in a very extraordinary degree. Aided by the tasteful and scientific exertions of Josiah Wedgwood and his imitators, it has since become the chief source of supply to all the world: but it is necessary to defer to a future article a brief notice of the steps by which this result has been attained.

Although we shall again advert to the productions of Messrs. Minton and Co., we may here append a few general particulars of their establishment, with which we have been kindly favoured. Mr. Thomas Minton, who founded the business about sixty years ago, devoted his attention chiefly to the production of good earthenware; but, being practically acquainted with the art of engraving, he introduced many improvements in the execution of the patterns for printing. He was the first to discountenance the use of oxide of lead for the glazing of earthenware, a material which had produced paralysis and other maladies in many of the workmen using it. This evil he obviated by the extensive substitution of borax. Since Mr. Herbert Minton has become the principal member of the firm, most of the artistic appliances which we have illustrated in the present work have been brought to bear; and the operations of the manufactory have been so far extended, as to afford constant employment to more than 1000 workpeople. In conjunction with Dr. Turner, Mr. Minton took out a patent in 1839 for the production of hard porcelain; but after a series of costly experiments, he abandoned the manufacture till 1849, when he again pursued it, with the assistance of M. Léon Arnoux, a talented French manufacturer. Although unable to surmount some of the technical difficulties of the process, Mr. Minton exhibited, in 1851, a number of chemical vessels, which were pronounced by competent judges as superior to the Berlin and Meissen wares in the same material. Hard porcelain is now imported into England to the value of 60,000*l*. annually; but, stimulated by the success of Wedgwood, Mr. Minton encourages the hope that, at no distant day, England may become an exporting country even in this beautiful material.

PLATE C.

PAPER-HANGINGS,

BY MADER, FRÈRES, OF PARIS.

Of the origin of the art of paper-hanging in France—that country in which it has attained so great a celebrity—there exist but uncertain indications; there is, of course the usual competition between England and France as to priority of invention, but, so far as actual authority is concerned, we cannot learn that the foreign manufacture exhibited any material developement previously to the end of the seventeenth century.

M. Savory* speaks of a sort of flock-hangings called "tontures de laine;" these were manufactured at Rouen, and their purpose seems to have been to supply the place of tapestries. Patterns in flock of various colours, in imitation of the figures on the tapestries, were printed on these tontures de laine, which served for a ground, though of a very coarse texture. "The artist," observes M. Savory, "having prepared his design, drew on the cloth, with a fat oil or varnish, the subject intended to be represented, and then the flocker, from a tray containing the different tints of flocks, arranged in divisions, took the colours he required, and sprinkled them in a peculiar manner with his finger and thumb, so that the various shades and colours were properly blended, and an imitation of the woven tapestry produced."

Printing by blocks is not mentioned in this passage, but wooden blocks and patterns are still preserved in France, bearing the date of 1620 and 1630.

A French name occurs as follows, in a book of travels of one Mr. Heinecken,† (mentioned by Beckmann in his "History of Inventions,") who writes, "Before I leave the Hague, I must not omit to mention M. Eccard's particular invention for making paper-hangings. He prints some which appear as if worked through with gold and silver; they are fabricated with taste, and are not dear." There really, however, seems to be but little information on the subject previous to the end of the last century. For the following, which gives some explanation of the subject, we are indebted to the Report of M. Zuber of Rixheim‡:—"Towards the end of the last century, about 1780, the manufacture of paper-hangings passed from England into France. The manufacturers who first established themselves were Arthur and Robert; Reveillon followed them. It was in the pillage of the factory of the latter, situated in the Fauxbourg St. Antoine, that the Revolution of 1789 commenced. The third was named Legrand. All these manufacturers opened their establishments in Paris. In 1790 the house of Zuber commenced business at Muhlhausen, and a little later, Joseph Dufour opened a factory at Mâcon, but after a time removed to Paris; subsequently, several considerable factories were established at Lyons: but Paris shortly became the centre of this branch of French industry, and has since maintained this position up to our day, following in this the example of London, which in a few years concentrated within itself the whole of this important manufacture of England. Germany commenced the fabrication of paper-hangings after France, but upon a very limited scale; then followed Switzerland, Holland, and Belgium, on a scale still smaller; Vienna, in Austria, and later Warsaw, witnessed the establishment of factories on elements taken from our house. Russia had its imperial factory at Szarko Szelo, which consumed

* "Dictionnaire de Commerce."

† "Nachrichten von Künstlern und Künstsachen." Leipsig, 1768.

‡ "Report upon the Manufacture of Paper-hangings, read before the Industrial Society of Muhlhausen at the sitting of the 27th of August, 1851, by M. Jean Zuber, fils, formerly President of the Society."

millions of francs without result; and in Spain a factory was established at Madrid by a Frenchman, of the name of Giroud de Villette."

The practice of hand-printing remained in force for a long period in France; however, in 1829 the first machine for producing an endless line by means of stencil-plates and a revolving brush, was introduced into Paris, through the house of Dauptain, fils, et Leur, by the late Mr. Clarke of High Holborn.* The introduction of this system produced a strike amongst the workmen, and so much were they enraged, that the Government were obliged to send soldiers to protect the establishment. Dauptain became frightened, and gave it up. The same fear pervaded the other Parisian manufacturers, and it was abandoned till 1831, when the Messrs. Zuber established a machine with great success, fabricating by means of it pieces in one length of thirty feet long, and had succeeded so well in the blending of colours and production of artistic effects as to produce, at the Exposition of Paris of 1834, a large landscape, for the beauty of which they were rewarded with the gold medal; an honour which was confirmed in 1839, 1844, and 1849.

The perfection now exhibited in their paper-hangings shows to what an extent the French manufacturers have advanced this art, and many are the improvements for which it is indebted to them. Amongst these we may enumerate the embossed and shaded flocks, improvements in satin grounds, imitation of chintzes, and the introduction of printing from engraved cylinders.

Amongst the houses which have become eminent is that of Mader, frères, from which have emanated the beautiful specimens we now engrave. This establishment, founded by the late M. Mader, a gentleman of much reputation in the history of paper-staining, was, after his death, carried on by his widow and eldest son, and is now known as the house of Mader, frères. On reference to the lists of the awards of the Expositions of French industry, from that of 1827 to that of 1849, we find them, on each occasion, supporting the reputation previously gained; and these honours have received their confirmation by the award of a Prize medal at the Great Exhibition of London of 1851.

We extract from the valuable Report of M. Zuber, already quoted, the following interesting commercial notice of the French and English manufacture:—

"In England, up to 1825, the manufacture of paper-hangings was protected by the absolute prohibition of foreign papers, but at the same time it was subjected to a tax so onerously applied, that, before the adoption of continuous paper, each piece composed of twenty-four sheets received on its back twenty-four stamps, with two more to mark the two ends; this duty amounted to about 1*s.* 4*d.* per piece. In 1825 Mr. Huskisson removed the prohibition, and replaced it by a duty on foreign products of one shilling per yard square, which, taking a piece of French measurement, amounted to the enormous sum of about seven francs per piece. My curiosity, nevertheless, led me to make an excursion to England, for the purpose of seeing if it were possible to import at this rate of duty, and to my astonishment I found I was able to enter into considerable transactions. 'You beat us completely,' was what I continually heard from the English dealers on showing our products. This state of things continued till 1834. Our importations at last pushed the English manufacturers into the improvement of their work, and at this latter date the English government reduced the customs duty to one half, and took off at the same time the stamp-duty on English-made paper-hangings. Our business was not in any way augmented, but the English manufacture made such progress that in 1846 Sir Robert Peel made a new reduction of the import duty by two-thirds; that is to say, reduced it to two-pence a-yard, or about one franc per piece. A violent shock to the English manufacture followed, but a salutary effect was quickly produced on it. During the first year of the new regulations our importations doubled themselves; they, however, soon fell off again, but not before this heavy competition had impelled the English manufacturers to such exertions, that now, with a duty one-sixth of that of 1825, we find a difficulty in introducing merchandise to the same amount as then."

* We have to acknowledge much valuable information obtained from this gentleman, than whom no one showed more real interest in the advancement of the manufacture of paper-hangings, or more skill in applying to it the principles of science and art.

A. STEVENS DES.

M. DIGBY WYATT DIRECT.

F. BEDFORD, LITH.

DAGGERS & SHEATHS DESIGNED BY A. STEVENS FOR WESTENHOLZ OF SHEFFIELD.

LONDON: GEORGE BELL AND SONS, PUBLISHERS OF THIS WORK, BY APPOINTMENT TO THE BOOKSELLERS TO THE QUEEN.

PLATE CI.

DAGGERS AND SHEATHS,

DESIGNED BY ALFRED STEVENS, AND EXECUTED BY G. WOSTENHOLM OF SHEFFIELD.

We should be exceedingly unjust did we not award great praise, both to the artistic and manipulative skill displayed in the three daggers and their sheaths represented in our Plate. The *motif* of the design is the Cinque-cento style, which is carried out in a very able manner through the ability of Mr. Alfred Stevens, whose long studies in Italy, under the best professors of art in that country, have qualified him in a peculiar manner for the task. The only exception which we should take would be to the scabbard of the second example; the ornamentation of which reminds us rather of the classic age of Severus than of the sixteenth century. Should the manufacture continue in the same path of improvement, the time may arrive when the productions of Sheffield and Birmingham will be ranged in the European museums by the side of the works of Cellini, Negroli, and Carradosso.

The practice of ornamenting armour and arms is almost coeval with their invention, and, without detaining the reader with accounts of the golden shields of Solomon or the mythic shield of Achilles, the breastplate of Agamemnon or the sword of Ajax, we will briefly mention one or two examples of Roman work which are still preserved. Among them is a very beautiful helmet, covered with empæstic work, found at Ribchester, and engraved in Vol. IV. of the "Vetusta Monumenta." Another, nearly similar, was found at Pompeii, together with some greaves, very beautifully ornamented. The shoulder-guards now in the British Museum, and commonly said to have belonged to Pyrrhus, although not of Roman manufacture, are among the finest specimens we possess of the art of the classic ages. We must not omit the sword ascribed to the Emperor Tiberius, found near Mayence, now in Mr. Farrer's possession, the sheath of which is of bronze, ornamented with figures, foliage, architecture, &c., many parts being decorated with small pieces of gold. This was exhibited at the last meeting of the Archæological Institute. Several other specimens of enriched antique armour might be instanced, but we must content ourselves with the testimony of Pliny as to the extent of the practice in his time:—"Cum capuli* militum, ebore etiam fastidito, cœlentur argento, vaginæ batillis, balthei laminis crepitant," &c. &c. Julius Cæsar is said to have encouraged his soldiers to ornament their arms, with the view to give them a greater inducement to keep them from being taken by the enemy.

During the dark ages we meet with scarcely any notices respecting the subject of our inquiry; doubtless the possession of beautiful arms must have been a desirable object to men whose occupation was frequently nothing but war. The workmen of that time, however, had but little skill; and it is not unlikely that many a *chef-d'œuvre* of empæstic and toreutic art was often seen in strange juxtaposition with the ruder productions of the Lombardic or Gallic armourer.

The first object of that period we are enabled to identify is the celebrated sword of Charlemagne, now at Vienna. The scabbard is remarkable for the insertion of several pieces of cloisonné enamel, upon a ground set with pearls. It is still an undecided question whether Rome or Byzantium has the honour of this work, but

* Capulus, a hilt.

from various circumstances it is very probable that it was executed by Greek artists resident at the former city. Not much later we find King Alfred presenting a "seax," or falchion (the national sword of the Anglo-Saxons) in a golden sheath, and a baldric studded with gems, to his grandson Athelstane, on the occasion of his being made a knight.

As far as we are able to judge by existing documents (such, for instance, as the Bayeux tapestry and illuminated MSS.), the arms and armour of the tenth, eleventh, and twelfth centuries, were almost entirely devoid of ornament: it is, however, probable that in some cases the helmet and coat of mail were gilt, and the sword-scabbard enriched with embroidery. We must, therefore, wait for any indications of ornament until the succeeding century, the epoch of the gradual introduction of plate armour.

During the whole of the middle ages the handles of the swords and daggers were, for the most part, but little ornamented. We do, indeed, find that the round pommel of the thirteenth century had occasionally the coat of arms of the owner inserted in enamel, but more generally it appears to have been plain. The handle itself was either bound round with wire, and sometimes with silk, or, if in metal, consisted of a few longitudinal or twisted mouldings, to give the hand a firmer hold. The whole of the decoration was reserved for the sheath, which was generally covered with some rich velvet, and strengthened by metal guards. These latter were worked into the most elegant shapes; and an inspection of Stothard's and Hollis's Monumental Effigies will give an excellent idea of the care and skill bestowed upon this part of the knight's equipment.

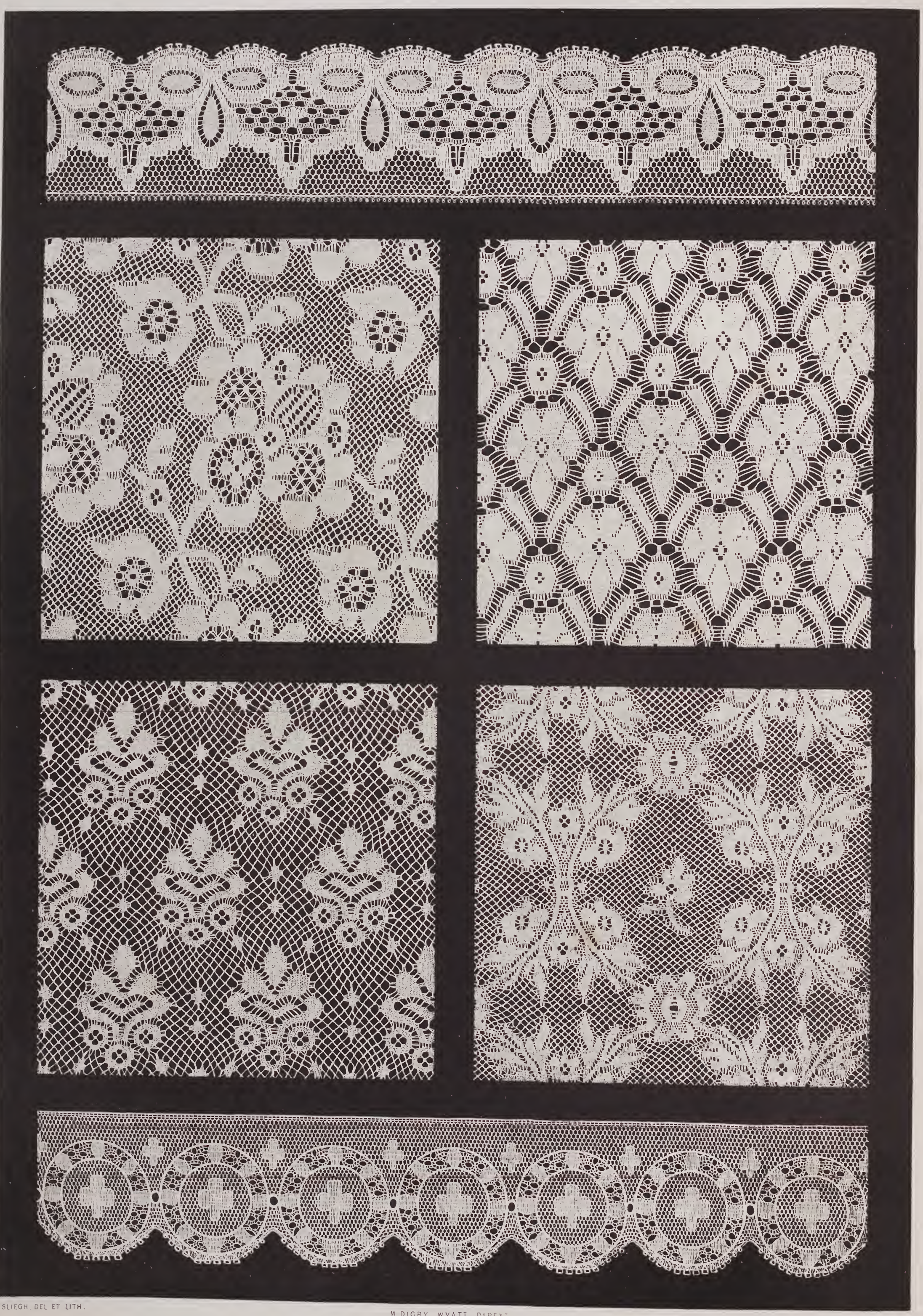
A sword, incorrectly ascribed to Hugh Lupus, the first Earl of Chester, is preserved in the British Museum. The handle is enriched with pieces of mother-of-pearl, and the pommel presents some very fine chasing or repoussage: it is impossible to tell which. Another sword in the same collection has several coats of arms enamelled on the handle; and the sword of state of the Archbishop of Cologne has a magnificent scabbard of silver filigree work, and is, besides, enriched with several jewels.

The small dagger worn by all classes during the middle ages, and which, when carried by the civilian, was called the "anlace," and when forming part of the military equipment had the appropriate name of the "misericorde," received quite as much ornament as the sword; indeed, the one is but often a reduced copy of the other. We often read of these anlaces, &c., being set with stones and otherwise decorated; but there is very little evidence that the hilts or scabbards were fashioned into figures of men or animals, as in later times.

Previous to the introduction of damascening, the principal decorations of weapons consisted of engraving, parcel-gilding, and raised work, which was produced by sinking the ground and leaving the ornament slightly in relief. All these processes may be studied in the armouries of the Tower of London and Goodrich Court, the Musée d'Artillerie at Paris, and the Armeria Real at Madrid. The latter contains many of the *chefs-d'œuvre* of Negroli, of Milan, and of Andrea di Ferrara,* both of whom appear to have been Italians, or at least to claim an Italian origin. The name of the latter is of European celebrity, for the excellent temper he contrived to give the blades of the weapons which bear his name.

In the sixteenth and seventeenth centuries, when the dagger formed part of the ordinary costume of every gentleman, great pains were taken with its ornamentation, and the services of the best artists and goldsmiths were eagerly secured for the purpose. To enumerate the names of those who were engaged upon this branch of the art, would be to give a list of the most distinguished goldsmiths of the period. We must content ourselves with mentioning the great Albert Durer, who engraved a partisan published by M. Planché in the "Pictorial History of England;" and Benvenuto Cellini, who, according to his own account, was the first to apply damascening to the blades of swords and daggers. At the present day, when the system of the division of labour obtains to so great a degree, the artist and manufacturer have become separated, and it only remains for the latter to secure the best artistic talent he can obtain; it is for this reason that we congratulate Mr. Wostenholm in having Mr. Stevens as his coadjutor.

* It is exceedingly doubtful whether it was Andrea himself or a namesake who was invited to Scotland by James IV. or V. to teach the Scots the art of tempering sword-blades.



J SLIEGH. DEL ET LITH.

M DIGBY WYATT. DIREX^r

MACHINE MADE LACE BY HEYMAN & ALEXANDER AND BY BIRKEN OF NOTTINGHAM

LONDON: PRINTED AND PUBLISHED OCT.R 1ST 1852 BY DAY & SON, LITHOGRAPHERS TO THE QUEEN

PLATE CII.

MACHINE-MADE LACE,

BY BIRKIN OF NOTTINGHAM.

In a former article on the subject of Nottingham lace (Plate XXX.), we limited our observations to that variety of the local manufacture in which a pattern was "run" by hand, after the groundwork was made by the bobbin-net machine. In the excellent specimen we now engrave, both the ground and the pattern have been entirely produced by the machine; and we shall endeavour to narrate a few particulars of the rise and progress of the Nottingham lace trade, the different machines employed, and the variety of goods produced by them. Interesting and important as the subject is, it is, however, so copious and intricate, that we can give only a very slight sketch, referring our readers for further information to an elaborate article by Professor Barlow in the "Encyclopædia Metropolitana;" to an equally careful notice of the subject in M'Culloch's "Dictionary of Commerce," and to the Jury Reports on the late Great Exhibition.

The first successful attempt to construct a machine for making fabrics in imitation of pillow-lace was made at Nottingham about the year 1768, by a stocking-frame-work knitter, named Hammond; and his invention was a modification of the stocking-frame. A machine, called a pin-machine, was introduced at Nottingham, about the same time, by Else and Harvey of London; and, although now disused in this country, it is still employed in France for making *tulle*. The warp-frame (also a variety of the stocking-frame) is largely employed for warp-lace, and dates from 1782, by which period the manufacture of plain lace by imperfect machinery had steadily increased.

The great improvement, however, which gave to this new branch of industry its most extraordinary impulse, was that introduced by Mr. John Heathcoat, who, in the year 1809, obtained a patent for the machine known as the "bobbin-frame," from which the fabric it produces has received the name of "bobbin-net." Several previous attempts had been made by others to construct such a machine, but without success. Mr. Heathcoat worked his patent extensively, with very profitable results; and he progressively effected several improvements in the machine. On the expiration of his patent in 1823 the Nottingham manufacturers, who had applied steam power (in 1816) to their less perfect machines, evinced the utmost eagerness to adopt the "bobbin-frame." This important invention, in fact, immediately superseded the pillow-lace trade, its enormous power of production rendering all competition with it hopeless.* The desire to possess bobbin-frames was not confined to the manufacturers: a perfect mania seized all persons who could raise a small capital. Butchers, bakers, farmers, and even clergymen, invested their means in purchasing these machines; and large sums were paid for instruction in the mode of working them. The popularity of the machine-made lace, and the profits for a time realised by its manufacture, justified the excitement which prevailed. Prices, however, fell as the manufacture increased, but the demand appeared unlimited; and the productions of the Nottingham lace-frame soon rivalled and supplanted the best plain nets of the Continent. The conclusion was not difficult to be foreseen: the immense supply of bobbin-net soon reduced the profits, and rendered the machines less valuable; and, though some of the earliest producers realised large sums, multitudes were disappointed, and many ruined.

The energy of various manufacturers in the improvement of the lace-frame nevertheless maintained and

* It has been calculated that, as compared with hand labour, the productive powers of the bobbin-net machine are now nearly as 600 to 1; and even in its earliest state the disproportion must have been very great.

increased the trade of Nottingham; and amongst these improvements none have been more important than the application of the Jacquard apparatus to the bobbin-net machine, so as to produce the most elaborate patterns with unerring accuracy and perfection. This has been effected since 1839, under the patents of Messrs. Vickers, Fisher, Crofts, Heathcoat, Birkin, and others; and machine-lace has been produced, bearing so close a resemblance to the most elaborate foreign grounds—Valenciennes, Mechlin, and Brussels—as to deceive even a practised eye. It would be almost impossible to enumerate the various improvements introduced by different local manufacturers: within the last fifty years hundreds of patents have been taken out; and every season still produces novelties, as various as the fluctuations of taste and fashion. It is gratifying to add that the School of Design established in the town is acknowledged by the best manufacturers to have had already a most beneficial influence.

As illustrating the effect of scientific improvements in reducing the price of the manufacture, we may observe that the kind of lace which was sold by Mr. Heathcoat for five guineas a-yard, soon after the date of his patent, can now be equalled at eighteen pence a-yard; that quillings which sold in 1810 for four shillings and sixpence, can now be excelled for three-halfpence a-yard, and that a certain width of net which realised seventeen pounds per piece twenty years ago is now sold for seven shillings.

In some information which he has kindly given us, Mr. Birkin describes, as follows, the different kinds of machines now in use:—1. The "Leavers" machine, so called after John Leavers, its inventor, applied to the production of black-silk piece net, trimming laces, blondes in white and colours, cotton edgings, linen laces in imitation of white pillow lace, muslin edgings, fancy piece net, plait net in imitation of Valenciennes, &c. 2. The "pusher" machine, which has independent pushers, to propel the bobbins and carriages from front to back, instead of pulling or hooking them, as in other arrangements. This is applied to the production of shawls, scarfs, flounces, &c. of superior quality, the pattern being afterwards worked by hand. 3. The "circular" machine, so called from the bolts or combs on which the carriages pass being made circular instead of straight, as in the straight-bolt machines originally constructed. By this machine imitations of the Swiss curtains, plain, spotted, and fancy nets, are made. 4. "Traverse warp-machines," so called from the warp traversing instead of the carriages, as in the circular and pusher machines. These are employed in making spotted lace, blond edgings, and imitation thread laces. Mr. Birkin adds, that owing to the substitution of wide for narrow machines the total number employed is less than it was in 1836. "There are now," he observes, "in full operation in Nottingham, 3200 bobbin-net machines, giving employment to 5556 men, and 6859 women and children,* and representing a capital of 1,329,445*l.* This is exclusive of buildings and requisite machinery for working the same; and also of machinery and stock for silk-throwing, cotton-spinning, dyeing, bleaching, and dressing; of smiths, bobbin, carriage, guide, comb, and point makers; and of embroiderers, carders, menders, &c. The number of persons regularly employed in these branches of the Nottingham trade is about 113,300; and the capital represented by the machinery, &c. may be estimated at 1,616,500*l.* making a total capital of 2,965,945*l.* The annual amount of business returns is about 2,300,000*l.*

Mr. Felkin, whose experience adds the weight of authority to his calculations, estimated in 1831 that the raw material (cotton and silk) used annually for Nottingham lace was worth about 150,000*l.*; that this value was increased to 540,000*l.* when spun into thread; and that the final value, when manufactured into net, and ready for sale, was nearly 2,000,000*l.*, or, including the wages of the embroiderers, more than 3,000,000*l.*

The black-silk lace trade of Nottingham, introduced within the last five years, has since greatly increased. The great bulk, however, of the bobbin-net is made of cotton, chiefly imported from the Manchester districts.

We had contemplated laying before our readers some account of the action of the bobbin-net machine, one of the most elaborate and complicated of any employed in textile manufactures; but, referring to the article already mentioned by Professor Barlow, we will merely quote the words of Mr. Birkin, which clearly and briefly describe the principle on which it acts:—"The bobbin-net machine is so called from the thread that makes the lace being partly supplied from bobbins, and partly from a warp placed perpendicularly. The bobbins being made to pass from front to back, and from back to front, while a lateral motion is imparted to the warp-threads, thus causing one series of threads to wrap or twist round the other. Mr. Heathcoat's original machine required sixty motions to complete one hole, the same being now made with six.

* The introduction of machines for "finishing," or embroidering the goods, has led to a great diminution in the number of females, or "lace runners," employed in the manner described in our former article.

J. HAYES DEL.

M. DIGBY WYATT DIRECT.

F. BEDFORD LITH.

FLORENTINE MOSAIC BY WOODRIFF OF BAKEWELL, AND ENAMELLED SLATE BY MAGNUS OF PIMLICO.

LONDON PRINTED BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CIII.

FLORENTINE MOSAIC, BY WOODRUFF OF BAKEWELL, DERBYSHIRE.

AND

ENAMELLED SLATE, BY MAGNUS OF PIMLICO.

The console table-tops we engrave in this Plate display specimens of English workmanship in a branch of art hitherto only known to us by examples produced in Florence; and therefore called Florentine mosaic. The work itself is a species of marble inlaying or marquetry, for which Florence has become as famous as Rome has for her cameos and vitreous mosaics; and it is gratifying to observe that our artists are at last leaving the old track of mere geometrical forms, in which the materials themselves were the chief objects of the workman's attention, their artistic disposition being regarded as worthy only of minor consideration.

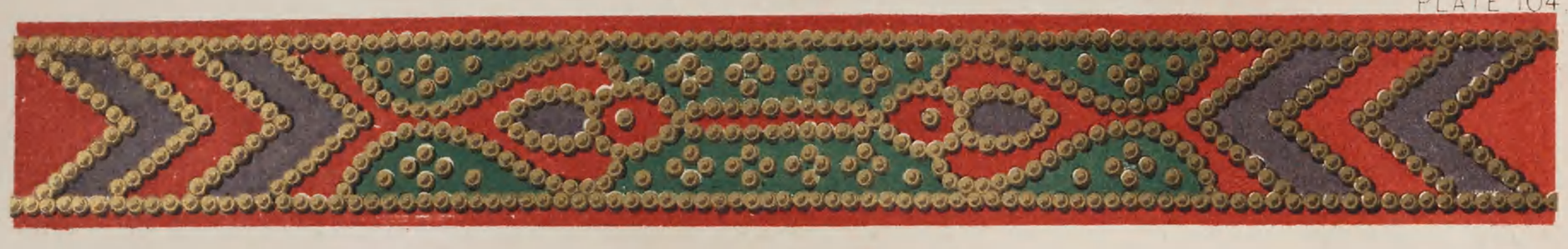
The term mosaic has been applied to all pictorial representations of forms and objects by means of hard substances cemented together in their proper shapes and colours; in its various branches it was extensively practised by the Greeks and Romans, and after the destruction of the arts in Italy during the incursions of the northern barbarians, was only understood by the artificers of the Eastern or Greek Empire, many of whom were afterwards brought into Italy. Subsequently, Germans came southward, and during the eleventh, twelfth, and thirteenth centuries, mosaicists of these nations are continually mentioned as working on the several buildings then in course of erection in Italy. Constantinople was the point from which the Greek artists chiefly came, though it has been asserted that a school of mosaic existed in Rome up to the eleventh century. Nevertheless, we do not meet with Italian names until the thirteenth century. From this period it is probable that the Italians learnt the art and worked at it themselves, though Greeks are still to be met with. Zobi, in his valuable account of the art of pietra dura,* says, it appears that the first who exercised this art in Tuscany was Jacopo da Turrita, called Fra Mino (said by Lanzi to be a pupil of Guido da Siena), who executed mosaics in the Battisterio di San Giovanni in Florence in the year 1225. Subsequently to him we find Andrea Tafi, who brought one Apollonius, a Greek, from Venice to Florence, and from him learnt the Greek method of vitreous mosaic working. In regard to this particular branch (the Florentine), he says, "I know no existing example in Italy of marble mosaic executed during the first periods of the revival of the arts, excepting the specimen to be seen in the central nave of Siena Cathedral, said to be the work of Duccio di Buoninsegna, who lived in the fourteenth century." Vasari, in his life of this artist, thus speaks of him:—"Duccio, a Siennese painter, merited the highest esteem from having, in the pavement of the Cathedral of Siena, laid the foundation of the practice of inlaying in marble figures in chiaro-scuro, an art in which modern artificers have produced those wonderful works we now see." It should be mentioned, that in this pavement lines of a black mastic were introduced to heighten the effect. This mode of working was continued for a long period, but eventually marbles were altogether employed. The system above mentioned, in combination with the practice of working in agate and rock crystal, much followed at this time, and the art of tarsia, or inlaying in wood of different colours, in vogue at Verona, and Florence, we may fairly consider to have produced the style of lavoro di commesso, or Florentine mosaic, as it is more generally called. The art was much fostered by the Medici; and the celebrated Fabrica Ducale of Florence was founded by Ferdinand I., in the year 1588.

* "Notizie Storiche riguardanti l'Imperiale e reale Stabilimento dei Lavori di Commesso in Pietre Dure di Firenze, compilate da Antonio Zobi. Firenze, 1841."

In this manufactory, maintained by the liberality of the successive Grand Dukes of Tuscany, agates and other hard stones are cut into shapes which, when set together, form a picture, on a flat surface, of shells, flowers, foliage, or other objects. The difference of these pictures from representations of the same subjects in glass mosaic consists principally in the pieces having a large surface, and being cut into the form of the object, the variety in the shade of the colour being the natural tint of the stone itself; it is, therefore, more limited in its scope, inasmuch as glass mosaic, being composed of pieces of any size and of any colour, may be made to represent the most finished pictures; whereas the inlaid agate-work, from the gradation of tints and colours being entirely dependent on the natural tints of the stones, is only fit for simple designs composed of outlines and a few colours; though indeed it is wonderful to see how beautiful and varied are the works which from time to time have emanated from the above-mentioned Fabrica Ducale. The materials employed are agates, chalcedony, jasper of various colours, lapis lazuli, and other stones suitable by their colours, hardness, and polish. Stones less hard than the above are also used, such as giallo antico, Oriental alabaster, &c., which are valuable from their beautiful colour and polish; other substances, not mineral, are likewise introduced—such as mother-of-pearl, and red coral. The ground is made from either rosso antico or more generally nero antico. Formerly the subjects sought to be represented were such as the Pantheon, tomb of Cecilia Metella, &c.; the result was, however, not very satisfactory, thus furnishing one of the many examples of the impropriety of proceeding with an unpliant material beyond those conventional forms, which of themselves give evidence of the limit to which they should be employed. The more suitable subjects now represented are shells, corals, flowers, vases, and foliage; these are made up on tables, paper-weights, brooches, vases, &c. In the Fabrica Ducale works of a larger description are manufactured, such as the beautiful altar-piece lately completed of pietra dura mosaic, for the Medicean sepulchral chapel of St. Lorenzo. In the Galleria there is a beautiful pietra dura table. Also several in the Pitti Palace, some of which made the memorable journey to Paris, and appeared in the gallery of Apollo in the Louvre.

The cutting of the agates is effected by a bow strung with an iron wire, and emery, which produce the same result as the thin iron wheel of our lapidaries. By these means the agates are cut into slices about the eighth of an inch thick; they are then polished, and by the above bow and wire are cut into the required forms. A slab of sandstone, about half an inch in thickness, supplies a temporary base, on which the various pieces forming the objects are put together and cemented. The material, whatever it may be, which is to form the ground colour, is then cut into slices of the same thickness, and adjusted so as to cover the whole table-top. By means of the wire, pieces of the exact size of the objects are cut out of this ground, which is then cemented on to a base of sandstone of the same size, and the pieces being removed from the temporary base, are also cemented into the vacuities cut in the ground, thus producing the representation intended. The cement used is a composition of wax, turpentine, and resin. The inlaying of marbles and agates has long been carried on at Matlock, in Derbyshire; but no attempts had been made to proceed beyond the most commonplace subjects, such as scrap-tables, &c., in which form or design seem to have been the last things thought of, till about 1833, when an imitation of Florentine work was tried in such subjects as butterflies and birds. At a later period the work was advanced to the production of sprays of flowers. In 1840 Mr. Woodruff, the gentleman who has executed the beautiful tables now engraved, produced a table-top, in which were introduced groups of birds, flowers, and fruit, which was at the time considered a great step in advance, and was purchased by the late Duke of Cambridge. Mr. Woodruff subsequently received the patronage of the late Queen Dowager, her present Majesty, and many of the nobility; amongst whom the Duke of Devonshire has shown the greatest interest in the manufacture, and much advanced it by allowing the free inspection of the beautiful specimens of Florentine work in his possession at Chatsworth. The specimens we give were made for H.R.H. Prince Albert, from the designs of Mr. Gruner, and were very properly the objects of a Prize medal for their excellent execution.

The subject occupying the centre of the present Plate is an imitation of Florentine mosaic, executed by Mr. Magnus, in his interesting manufacture of enamelled slate. The extreme hardness of the artificial surface of this material is truly remarkable. It is produced by applying to the finely-rubbed slate numerous coats of japanning, the whole being constantly baked, at a very high temperature. The texture of marble is given to it, by an ingenious application of the ordinary practice of book-marbling, modified with much judgment by Mr. Magnus; whose endeavours to combine economy of production with the greatest possible amount of good taste, are highly to be commended.



J. SLIEGH. DEL ET LITH.

M. DIGBY WYATT, DIREXT.

DECORATION OF AN INDIAN SADDLE COVER.

LONDON PRINTED AND PUBLISHED OCTR 1ST 1852 BY DAY & SON LITHOGRAPHERS TO THE QUEEN.

finding a few specimens of these arts in the disinterred palaces of Assyria, or on the sculptured monuments of Persia, we should be unable to judge, and unwilling to admit, the high perfection to which many of these arts had attained in very ancient times. So in the case of China, if it had not been for the researches of scholars, we should have disbelieved the high antiquity in that country of the manufacture of porcelain and of paper, a knowledge of silk, of gunpowder, of various metallurgical compounds, and of the mariner's compass. But in all these countries India is referred to, in the earliest times, as an object of admiration or of desire; and though we may disbelieve in the conquest of any part of India by the Egyptian Sesostris, or the Assyrian Ninus, or in the expedition of the Indian Bacchus, yet the very prevalence of such traditions in the earliest times of which we have any record, seems to prove that the country was famed for the richness of its products, and for the early civilisation of its inhabitants. We know, moreover, that Alexander the Great found them so more than 2000 years ago, and we find them now hardly differing from what his historians described them to be in his time. The Chinese, moreover, derived their most popular religion, and one class of their sacred books, from India."

The authors who have most deeply investigated the particular question of the antiquity of the Hindoo writings, have been inclined to date those singular documents, the hymns of the Vedas, at least as far back as the year 1000 B.C. Those venerable records prove that the Hindoos were then not only an eminently agricultural people, but, as Professor Wilson observes, a manufacturing people also; "for," he remarks, "the art of weaving, the labours of the carpenter, and the fabrication of golden and of iron mail, are alluded to: and, what is more remarkable, they were a maritime and mercantile people." The latter observation is strongly borne out by the view taken by that great German student, Heeren, who, from very different premises, arrives at the same conclusion. In investigating the nature of the products which are reputed to have formed the principal elements in the trade of Persia and Phœnicia, that learned author has expressed his belief that many of them emanated from India.

Referring to the extensive trade carried on by Solomon, Dr. Royle has observed (in his "Essay on the Antiquity of Hindoo Medicine") that, from the different products described as brought to the court of that monarch—"especially ivory, apes, peacocks, and pearls—it is evident that only southern countries, whether Africa or India, could have been the object of the voyage. But cinnamon, and cassia, nard, calamus, and onycha, having been shown to be peculiarly Indian products known to ancient commerce, there can, I conceive, be no doubt that the west coast of India, and probably also the island of Ceylon, were reached, even in those early times."

Dr. Royle, in his "Lecture," proceeds to state that "the philosophical Heeren appears to have justly ascribed the flourishing state of many of the cities of Egypt, as well as of Babylon, and of such places as Palmyra and Petra, to their trade with India. Many of the products which formed articles of commerce, were such that they could not have been obtained from any nearer locality. Being ourselves situated in a remote corner of Europe, we contemplate the difficulties of these journeyings and voyages from an insular point of view, and consider how we could have undertaken them at those early times; forgetting that the people of Persia and Affghanistan would have found no great difficulty in crossing into India, nor the Phœnicians of the Persian Gulf even in reaching the mouths of the Indus. The Arabs of the Red Sea, even before the discovery of the regularity of the monsoons, might easily have coasted to the Persian Gulf, and gone as far as, or beyond the Phœnicians, to the ancient Barygaza, and been carried from thence to the western or the Malabar coast of India, which is the nearest point where pepper, cassia, and other such spices, could have been obtained. There is nothing impossible in these ancient wanderings; in fact, we know that they must have taken place: for the philosophical investigations into the structure of languages have shown a great similarity between the Sanscrit, Persian, Greek, Latin, Teutonic, and Celtic, which are now usually called Indo-Germanic, but of late Aryan languages, because this appears to be the oldest name by which the nations speaking them called themselves. It is curious, as has been observed, that the Indo-European languages all exhibit the most striking coincidences in words expressive of the first peaceful arts of mankind, while the terms connected with the chase or war are mostly peculiar. Consequently, there appears to me nothing improbable in the people of India having been as early civilised as any of the nations I have mentioned."

We hope to pursue these interesting inquiries in a future article.

L. P. WICKENDEN DEL. "PUGIN & WYATT D. REX." W. INTER LITH.

A SHIELD IN IRON DESIGNED BY VECHTE FOR LE PRÉVOST MONTIER OF PARIS

PRINTED AND PUBLISHED OCTR 5TH 1852 BY GEO. REES, LITHOGRAPHER TO THE QUEEN.

PLATE CV.

A SHIELD IN IRON,

DESIGNED BY VECHTE FOR LEPAGE MOUTIER OF PARIS,

AND TWO PISTOLS.

The principal object in our present plate might well, both from its artistic merits and technical excellence, be ranged with many of those bucklers which the immortal Cellini and his compeers have left us as memorials of their own powers, and of the high standard of art at that period.

We have already had occasion, when calling attention to another work of M. Vechte's (Plate XXVII.), to speak in terms of high commendation of that artist's labours, and we shall be fully justified in extending that praise to the object here represented. The subject of the composition is the "Massacre of the Innocents," with an appropriate centre of Furies and loathsome monsters; the whole is enclosed by an arabesque border in low relief.

According to our promise in a former article, we shall proceed to lay before our readers some account of the life and strivings of M. Vechte, the materials for which have been most kindly furnished us by that artist.

M. Vechte (born 1801) is native of Vir in Burgundy, but he was taken at an early age to Paris, where his first occupation was cotton-spinning; he afterwards worked at the several trades of toy-maker, paper-hanger, button-maker, and carpenter, and continued in a very humble station in life, not always free from actual deprivation.

After losing both his parents our artist obtained some employment with a man named Daussin, by trade a chaser, and thus, as it were, made the first step on that path, which he has since trodden so perseveringly, and at last successfully. While with Daussin he accidentally met with Plutarch's Lives of great men, the perusal of which so stimulated his ambition that he thenceforward aspired to the profession of an artist, though he had no master to assist his studies, pursued amid the toil of the workshop. M. Vechte's peculiar talents appear to have exhibited themselves in a manner so original as to have drawn down upon him the derision of his companions, who considered him visionary and self-conceited; but he would not allow himself to be discouraged, bearing steadily one object in view, namely, ultimate success. A number of years of anxious labour passed, however, without any very great result; or, as our artist himself says, he was still nothing more than a good workman, and laboured for others. He was next induced by the care of a rising family to work on his own account, but an unfortunate partnership in a short time again reduced him to his former condition of a working chaser. He began, however, to be known in his trade, and appears also to have been employed by some curiosity-dealers, to restore and retouch suits of antient armour. In executing these little commissions he exhibited so much proficiency that he was engaged to make some entire pieces of armour in *imitation* of the antique. In this, also, he was so successful, that his commissions for such works multiplied to such an extent as to afford him constant employment; for the dealers found that the productions of this obscure workman could be passed off to antiquarian connoisseurs as veritable specimens of antient art; and M. Vechte has, doubtless, supplied many an object of cinque-cento art to the private cabinets or even the public museums of Europe.

When our artist became acquainted with these circumstances, his slumbering ambition of attaining eminence in his profession was again roused, and he pursued his studies with redoubled vigour; the more so as the work he was engaged on necessitated a constant recurrence to antient examples, until he seems to have become thoroughly imbued with the spirit of that beautiful period of art, known as the cinque-cento. He says himself: "I have learnt since, that many works which I then executed were sold to, and still remain in, the collections of many acknowledged connoisseurs as originals; even public museums, notwithstanding the experience of their officers, have not escaped from imposition, as I know that the Emperor of Russia and the King of Prussia have purchased shields as the genuine works of Cellini, upon which I could point out to them my own name."

As soon as some of M. Vechte's larger imitative works became known at Paris, he was as much courted by his fellow-artists as he had before been neglected and discouraged, and he had no lack of employment of the highest class. The first of his more important commissions was from the Duc d'Albert de Luynes, who ordered a vase to be executed in repoussé; the subject to be represented was the triumph of Neptune. This procured our artist an introduction to his Majesty Louis Philippe, who acknowledged his talent by decorating him as a Knight of the Legion of Honour, on the occasion of his exhibiting a cup executed for M. Devendeuvres. M. Vechte also received a gold medal from the Government the first time he publicly exhibited his work. "At that time," he says, "everything was prosperous with me; for, besides these honours, I had commissions to the amount of 1,500,000 francs (60,000*l.*);" but the ill-fated year 1848 deprived him of his employment and dispersed his hopes of future advancement. His patrons all withdrew their orders on account of the unsettled state of public affairs, and the only work which he retained was a vase for the Museum of the Louvre.

It was at this juncture that Messrs. Hunt and Rosskell renewed an offer they had made to M. Vechte in the previous year to come to London, but which he had then been unable to entertain owing to his numerous engagements; he now accepted their proposal, and speaks most highly of the liberal encouragement he has received from them. He immediately set to work upon the large shield in silver and iron in repoussé, on which is represented the apotheosis of Milton, Newton, and Shakspeare, and which deservedly attracted so much attention in the Great Exhibition. Our artist has since executed a large vase in silver repoussé, which was the prize cup at the last Goodwood races, and we understand that Her Majesty has given a commission for a similar one.

The incidents of M. Vechte's life, thus briefly sketched, furnish a strong practical illustration of what may be accomplished by moral courage and perseverance, even under great financial and educational disadvantages, and opposed by the great obstructor of progress, prejudice. Of this artist's future success no one, we think, can entertain a doubt, and it must be considered a subject of congratulation to this country that his works will in future be identified with it.

M. DIGBY WYATT DEL.T.

F. BEDFORD LITH.

STOVE IN THE MEDIÆVAL STYLE DESIGNED BY PUGIN FOR HARDMAN OF BIRMINGHAM

LONDON PRINTED AND PUBLISHED OCTR 15TH 1852 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CVI.

STOVE IN THE MEDIÆVAL STYLE,

DESIGNED BY PUGIN FOR HARDMAN OF BIRMINGHAM.

No one who has visited the Continent can have failed to draw a comparison between the cumbrous blackleaded erections of cast-iron which di-figure so many of our public buildings, and the elegant stove of white earthenware by which the French and Germans obtain the requisite degree of warmth, without offending the eye that can appreciate the beautiful in every form; and if we may judge by the beautiful execution of the coloured arabesques, with which so many of their stoves are decorated, they must be rather costly pieces of furniture. The more common sorts are, it is true, without coloured ornament; but the raised or sunk enrichments are often beautiful, and rarely offend against the canons of good taste.

We have already given (at Plate LV.) an example of these stoves contributed to the Great Exhibition by Berlin; but the subject of our present Plate is of a very different construction, and is intended for the heating of a large hall, or other public place. Instead of the tiles themselves forming the structure of the stove, they are placed in a framework of iron, and only serve as an outer enclosure to the flues and fire-box of the stove.

The invention of these closed stoves, as we gather from the evidences of the monuments and MSS. of the middle ages, must be awarded to the Germans; for it is in the works of their artists that representations of them most frequently occur, and the only existing examples have been discovered in their principal cities and castles. Two of these are represented in the excellent work of Herr Heideloff on the middle ages, the most perfect of them is now in the Hohen Schloss at Fussen, and deserves particular attention, as it bears the name of the maker and the place of manufacture in a raised inscription running round the base, and which reads thus:—"Diser : ofen : wol : gestald : wurd : gemacht : da : man : zalt : 1514 : jar : bey Hansen : Seltzaman : vogt : zu : Obendorft."* The stove is built up of hollow ornamental tiles, with the concave side outwards, into the form of an hexagonal tower of some ten or twelve feet high, the whole of the exterior being covered with a green glaze, relieved by yellow ornaments. The second specimen was found in a very imperfect state among the old buildings of the "Prediger Kloster" at Nuremburg; and although presenting similar characteristics to the preceding example, differs greatly in the architectural treatment of the details. The tower-like outline and the use of hollow tiles are represented by nearly every contemporary authority as generally prevalent.

Great praise is due both to the late Mr. Pugin and Messrs. Minton and Hardman for the design and execution of this stove. It was evidently the object of the talented artist, whose decease we all deplore, to present a specimen of the mediæval stove, adapted in some respects to modern improvements, and not quite so cumbersome as those in vogue in the fifteenth and sixteenth centuries.

Mr. Minton has performed his part in the manufacture of the tiles with a skill worthy of those master-potters, Glockenthorn, Prunner, Pröbes, Leygebe, and Andreas Leupold, whose works obtained for Nuremburg the same reputation for *Faience* that those of Albert Durer and others had previously done for sculpture and painting. A very considerable trade was carried on both by this city and Augsburg in earthenware

* "This stove, well formed, was made in the year 1514, by Hansen Seltzaman, mayor of Oberdorft."

stoves and other fictile ware; and it is not unlikely that the Dutch tiles, with blue figures, which were so extensively used during the last century, were originally manufactured in these towns.

It was not until the middle of the sixteenth century that the art of applying to pottery a white stanniferous glaze became generally known in Europe; although it was certainly in possession of the Arabs in the thirteenth century, and had been re-discovered in the fifteenth by the labours of the celebrated Luca della Robbia. It has, however, been supposed that the secret was known to the Arabs as early as the ninth century; and it is still a disputed point whether they were the inventors or had received the art from some of their more eastern neighbours. They certainly brought it with them into the countries they conquered and colonised in their great westward movement, and to this day the walls of their monuments at Cadiz, Cordova, and Seville, glow with the imperishable colours of the "Azuleijos;" a species of tile, manufactured in no very dissimilar manner from those which form the materials of the "Mediæval Stove." The chief peculiarity consists in the pattern being raised, and after the whole surface had been covered with the white stanniferous glaze, the interstices between the raised parts were partly filled with variously-coloured enamels; these were, however, so thin that the pattern retained nearly all its original prominence. It is not exactly known whether the tile had to be passed several times through the kiln, or whether one or two firings were sufficient. The Azuleijos were highly esteemed by the Arab architects, as forming a durable facing for the internal walls, where the coloured plaster-work could not be employed without great risk of getting disfigured. In this position they play an important *rôle* among the decorations of the Alhambra; and some few of them even found their way to our own country* at a time when we might imagine that there would have been but little commerce in such articles between Spain and the West of England.

When the opaque stanniferous glaze became better known, many attempts were made to apply it to the manufacture of tiles; some of these productions may be seen in the Museum of the Hôtel de Cluny at Paris, and present simply an incised pattern, like those of the eleventh and twelfth centuries: others, however, have finely-drawn heads in circles, and other ornaments of the Renaissance style, most of which are executed in a blue colour upon the white ground. They deserve attention as the prototypes of the common Dutch tiles, concerning which we may hazard the remark, that had they been executed in the thirteenth or fourteenth centuries, in Italian *ateliers*, instead of in the seventeenth and eighteenth, they would have formed a class of art-manufactures worthy to be placed with those of Etruria and Faenza, instead of, in many cases, provoking our ridicule by the awkward drawing of the figures and ornaments.

White tiles, presenting various painted patterns in bright colours, may occasionally be found in Italy and Belgium, but they are exceedingly rare, and, as objects of antiquity, command high prices. Of late years, many of the French and German stoves have their tiles enriched with the most charming arabesques, often copied from the works of Raphael and Giulio Romano. In our own country, Mr. Minton and other manufacturers have lately produced painted tiles of great excellence, the principal application of which has been to line the cheeks of fireplaces; and the object now illustrated shows how they may be further used to add to the utility and improve the appearance of our stoves, which are at present too often only unsightly encumbrances.

* In the Mayor's Chapel at Bristol.

DALZIEL DEL.

W. GIBB WEBB LITH.

F. BEDFORD IMP.

ENAMELLED VASE & DISH EXECUTED BY MORELLI FOR WEBB OF LONDON

LONDON PRINTED & PUBLISHED OCTR 15TH 1852 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CVII.

VASE AND DISH ENRICHED WITH ENAMEL,

EXECUTED BY MOREL FOR WEBB OF LONDON.

The beauty of the form, material, and decoration, of the objects grouped in the present Plate, scarcely require to be pointed out in detail to the intelligent observer. The coloured enrichments, which are very judiciously introduced, are executed in enamel of the description known as the "painted" and the "translucent." The peculiar processes by which these are applied we shall take occasion to describe hereafter; at present we proceed with the general history of the art, in continuation of our former notice (Plate LI.).

The term champlevé has been happily applied by the French antiquaries to the second great division of incrusted enamels; which, although presenting no very dissimilar appearance to the cloisonnés, were executed by a different process—one that had the advantage of being exceedingly simple, and was probably invented by those half-civilised nations whom Philostratus designates, in the third century, as the "barbarians near the ocean,"* who, he says, possessed the art of fixing colours upon brass.

In our notice of the Byzantine and Italian works, we mentioned that the cells for the reception of the different enamels were formed by thin bands of gold attached to the ground; but in the ornaments of the Western nations these cells are made by removing the ground of the metal itself to the depth of about one-sixteenth or one-eighth of an inch, leaving thin strips of the material (nearly always brass) to separate the enamels. Ornaments of this description are for the most part discovered in Great Britain and the north-western parts of France. It is, therefore, not improbable that many of them may have been produced by the artists of Limoges—a city which, during the whole of the Roman occupation of Gaul, was a great emporium for works in the precious metals, and eventually gave her name to a branch of this very art. But little light is thrown upon the art-history of this city by the scanty chronicles of the dark ages. That it possessed a school of skilful goldsmiths is apparent from the fact that Eloi, the best workman of his age, was educated there by Abbon, the moneyer; but there exists no information respecting the subject of our inquiry, beyond some obscure notices of an enamelled chalice and ring, said to have been the property of the great saint; and even these, it is not improbable, were, like most of the contemporary ornaments, of cloisonné work. In fact, there is a great lacuna in the history of champlevé enamelling between the Gallo-Roman period and the reappearance of the art in the eleventh century under Byzantine influence.

This Byzantine influence came through the Venetians, who, as early as 979, established a "comptoir," or factory, at Limoges, for the reception and sale of the "spiceries" and fabrics imported from the Levant to Marseilles: a land journey conveyed them to the "comptoir," whence they were distributed throughout the west of France. At that period few people were so completely imbued with Byzantine art as the Venetians. They had received and employed the artists expelled by the iconoclast emperors; a great part of their trade was to the capital of the East, and finally they were in the habit of commissioning Greek artists to execute works in which more than usual skill was required; such, for instance, as the *Palliotto*, concerning which it

* These were probably the inhabitants of the north-western part of Gaul, from whom the art may have been communicated to the Britons, and thence it passed to Ireland. One of the finest examples of British work is a vase found in Essex, in 1834, and engraved in vol. xxvi. of the "Archæologia."

is to be remarked that the Doge Orseolo, by whom the commission was first given, afterwards retired into France. Under these circumstances we can scarcely be surprised to find the figures on the Limoges enamels of the eleventh century with a decidedly Byzantine style of drawing; or that saints are represented, who are little known in the Western Church; or, again, that the first specimens should have the ground, figures, and carnations, all enamelled in imitation of the cloisonné work. So strong, indeed, was the impress of the Greek style on the works of the Limoges school, that two centuries elapsed before it disappeared, and some traces remained even to the very last.

The first work, concerning which we have any information, is that of the Monk Guinamundus, of the Abbey la Chaise-dieu, who is known to have fabricated the shrine of St. Front, at Perigueux, in 1077. The work of Frater Willielmus, whose name appears on the beautiful crosier now preserved at Goodrich court, is probably about the same date, as are also two enamelled plates (in the Hôtel de Cluny) supposed to be part of the altar of the Abbey of Grandmont. A little later we have the monumental plate of Geoffry le Bel, now in the Museum at Mans; and in 1180 and 1201, the exquisite tombs of Henri le Large and Thibaut III. counts of Champagne, formerly in the cathedral of Troyes, and destroyed in the great revolution.

At the latter part of the twelfth century, and during the whole of the thirteenth, Limoges produced an immense number of objects, not only for ecclesiastical use, but also for the purposes of every-day life; and we are enabled to form some idea of the extent of the manufacture when we find that very nearly every parish church in Acquitain possesses, even now, one or more specimens of the "opus Limoviticum"—to say nothing of those buried in the cabinets of antiquaries, or the still greater number melted up for the sake of the material, or destroyed by the Reformers. Of all the beautiful tombs and effigies which proceeded from the Limousin *ateliers* only two remain—that of William de Valence (1296), in Westminster Abbey; and that of John, son of St. Louis, in the church of St. Denis. Both are mutilated, but both are conspicuous for the freedom and delicacy of the ornaments; serving only to increase our regret for the loss of those of Walter Merton, bishop of Rochester (1267), Alix duchess of Brittany, and many others. The articles for ecclesiastical use consist principally of crosses, crosiers, pixes, candlesticks, shrines, and the small reliquaries, which were so commonly known under the appellation of "Bahuts de Limoges." We must also notice the exception made in favour of the "opus Limoviticum" as a material for chalices and ciboria, which were by a papal decree expressly forbidden to be made in brass, "propter ærubiginem." A small number only of those vessels destined for domestic use have come down to us. A scarcity, due partly to the price of the workmanship, which rendered it little less costly than silver, and yet of no intrinsic value, and therefore useless to send to the moneyer upon an emergency. However, there remain a few caskets, fibulæ, bars for girdles, escutcheons for heralds, basons, and ornaments for horse harness; but, unfortunately, in small numbers, with the exceptions of the heralds' escutcheons and the basons, the latter are for the most part ornamented with charming scenes from the "faibleaux" so popular at the period of their manufacture.

We have before observed that the productions of the eleventh and twelfth centuries are more or less in imitation of the cloisonné work—the carnations, figures, and ground, being all in enamel; but in the latter century we find an innovation by the introduction of two or more colours in the same compartment; and in the thirteenth the ground only is enamelled, leaving the figures in the metal, with their details expressed by the burin. Occasionally, however, the head is beaten up in another piece of metal, and afterwards applied to the flat surface; and in small articles whole figures are often treated in this manner.

Limoges continued to flourish during the eleventh, twelfth, thirteenth, and latter half of the fourteenth centuries, at which time the town was taken and sacked by the English. This misfortune was, indeed, repaired in a few years, but the trade of the town was beset by an enemy far more powerful than the English prince. A new kind of enamelling had been discovered by the Italian artists, and was more especially a branch of the goldsmith's art, not a separate trade; it was, moreover, capable of being easily applied to works in gold and silver, which, from some reason, were very numerous about this time. The consequence was, that the champlevé work was disused, and the enamellers of Limoges lost their employment.

H WAVE DEL

W DIGBY WYATT, DIRECT

SILVERSMITHS WORK BY COUGH OF BIRMINGHAM

PLATE XCVIII.

SILVERSMITHS' WORK,

BY GOUGH OF BIRMINGHAM.

Birmingham has long been celebrated, though in a less degree than Sheffield, for works in Britannia metal, German silver, albata, and other materials, imitating, and in appearance nearly resembling, silver. The latter metal is also extensively used in the local manufacture of pencil-cases, thimbles, and other small articles, as well as in plating spoons, forks, salvers, &c., of copper and white metal. For the latter purpose, 15,000 ounces of silver were used in Birmingham in the year 1846. In the establishments of Messrs. Collis, Elkington and Co., Hardman, Gough, and some others, silver plate is constantly produced. There are in all more than fifty silversmiths in the town; and the total quantity of silver annually used in different branches of art and manufacture exceeds 150,000 ounces; one manufacturer having melted 34,000 oz. for his own consumption, in trinkets, &c., in one year.

That Mr. Gough is well qualified to do justice to the beauty of the precious metals, both in reference to design and execution, is sufficiently testified by the objects we now engrave. Engaged also in the electro-plate manufacture, that gentleman employs upwards of seventy skilled artizans, himself designing and modelling, with much taste and feeling for the proprieties of his art, most of the objects produced in his establishment.

As we shall again have occasion to advert to the manufactures of Birmingham, we propose in the present and future articles to give a brief *résumé* of the early history and commercial progress of the town, together with a few descriptive illustrations of its most important and characteristic productions.*

The quaint and sagacious historian of the place, William Hutton, unable to trace by any authentic record the existence of the present trade of the locality prior to the sixteenth century, indulges in an amusing series of conjectures: surmising that even the aboriginal inhabitants of Britain may have defended themselves against the Roman conquerors with the aid of weapons forged at Birmingham. It is true that the neighbouring iron mines of Staffordshire were worked at a very early period, and that the local and geological characteristics of its site peculiarly adapted Birmingham for smelting the ore; but even the enthusiasm and ingenuity of Hutton must fail to establish all his suppositions, in the absence of written testimony, either in our copious national records or other sources. All we know is that the place described as "Bermengeham" in the "Domesday Survey," is not at all specially distinguished in that venerable compilation; that, from the time of the Heptarchy to the reign of Henry VIII., the manor belonged to the family of De Bermingham; that the privilege of a weekly market was conferred upon the town before the Norman Conquest; and that, as early as the twelfth century, it had acquired some celebrity in the tanning of leather, a trade for which it continued subsequently famous, though it has now been long extinct as characteristic of the place.

Perhaps the first indication of the practice of metal-work is that afforded by the accounts of the church-wardens of Birmingham for the year 1498, containing as they do the entry of a payment "for repeyling (repairing) the organs, *to the organ-maker at Bromicham;*" an orthography, by the bye, which partially prevailed, and even governed the popular pronunciation, till the beginning of the last century.

* In doing so we shall avail ourselves of a carefully-written notice of the subject in the second volume of the "Journal of Design."

Leland, who, by express commission from Henry VIII, travelled over the greater part of England between the years 1533 and 1540, has left us an interesting notice of Birmingham as he then found it. "I came," he says, "through a pretty street or ever I entred into Bermingham towne. This street, as I remember, is called Dirtey [Deritend]; in it dwell smithes and cutlers." And again: "The beauty of Bermigham, a good markett-towne in the extreame partes of Warwickshire, is one street, goeing up alonge almost from the left ripe of the brooke, up a meane hill, by the length of a quarter of a mile. I saw but one paroch-church in the towne. *There be many smithes in the towne* that use to make knives and all mannour of cutting tooles, and many loriners that make bittes, and a great many naylors; soe that a great part of the towne is maintained by smithes, whoe have theire iron and sea-cole out of Staffordshire."*

Camden describes "Bremicham" as "full of inhabitants, and echoing with forges;" and adds that "most of the inhabitants be smiths;"† so that the existence of even an extensive local manufacture as early as the sixteenth century is unquestionable.

In the Civil Wars we find that the townsmen supported the Parliamentary cause, and made swords for the army. Hence they incurred the vengeance of Prince Rupert, who set fire to and destroyed a great part of the town. The scanty population of the "three streets" of Birmingham was almost destroyed by the Great Plague of 1665, and these calamities must have sadly retarded its prosperity. On the restoration of Charles II. the luxurious frivolities of French taste were introduced, and the "brass toy trade," in which the town has ever since been unsurpassed, was established for the production of glittering trifles in the shape of pouncets, pomanders, tags, étui-cases, snuff-boxes, and other appurtenances of personal vanity.

From that time to the present the trade of Birmingham has steadily increased. William III. was perhaps its greatest benefactor, in introducing two important, though widely different articles of production, namely, guns and buckles. Lamenting the necessity of procuring the former from Holland, his Majesty was induced, by a patriotic representative of Warwickshire (Sir Richard Newdegate), to give to a Birmingham manufacturer a commission which laid the foundation of the local gun-trade. "The Revolution," says Hutton, "was remarkable for the introduction of William, of liberty, and of the minute buckle, not differing much in size and shape from the horse-bean. This offspring of fancy, like the clouds, is ever changing: the fashion of to-day is thrown into the casting-pot to-morrow. The buckle seems to have undergone every figure, size, and shape of geometrical invention; it has passed through every form in the whole zodiac of Euclid. The large square buckle is the *ton* of the present day. The ladies also have adopted the reigning taste: it is difficult to discover their beautiful white feet covered with an enormous shield of buckle, and we wonder to see the active motion under the massive load. Thus the British fair support the manufacturers of Birmingham, and thus they kill by weight of metal."

Bishop Gibson, in his additions to Camden, in 1722, mentions, besides the "smiths" noticed by the latter, "other artificers in iron and steel, whose performances are greatly admired both at home and abroad."

About the time when Hutton published his history (1781), it was the custom to address letters to "Birmingham, near Walsall;" and although the trade had given ample promise of future consequence, even he, sanguine as he was in his predictions, could not have anticipated its present greatness. Much of this is due to the general progress of the country, to improved means of transit, and other similar causes; but we must not overlook the efforts of such men as Boulton, Watt, John Taylor, Baskerville, Eginton, Murdock, Hardman, sen., Thomason, Priestley, and many more—the local aristocracy of talent at the close of the last century, who have been well seconded by the manufacturers of our own days.

As an index of the progress made in the manufacturing importance of Birmingham since the days we have last referred to, no better test can be found than the progressive increase of its population. In 1781 this was estimated at about 25,000; in 1831 the number had increased to 120,000; in 1841 to 182,894; and at the last census, 1851, to 232,634.

* Leland's "Itinerary," by Hearne, 8vo. vol. iv. part ii. p. 186 b.

† "Britannia," 1st ed. 1586.

PLATE XCIX.

HOT-AIR STOVE,

DESIGNED BY ALFRED STEVENS, FOR HOOLE, ROBSON, AND HOOLE, OF SHEFFIELD.

Amongst the manufacturers who have contributed to the reputation, which Sheffield has so deservedly attained in the successful application of iron and steel-work to domestic purposes, few have laboured with better effect than Messrs. Hoole, Robson, and Hoole, from whose establishment the beautiful object which we now engrave has emanated. The productions of Messrs. Hoole and Co. in the Great Exhibition were characterised by a happy union of tasteful design and skilful execution, which received its due acknowledgment in the award of the Council Medal. In the preparation of this elegant stove, as well as in other works, those gentlemen have evinced much judgment by securing the valuable aid of Mr. Alfred Stevens, who in the present design has exhibited a refined appreciation of the highest class of Italian art of the Cinque-cento period. By modelling a large proportion of the ornaments himself, he has shown how admirable a result may be obtained when the talents of the designer and the practical modeller are combined in the same person.

In approaching the manufactures of Sheffield, a wide field of historical and scientific observation is opened to our view; and we propose in this and future articles to advert briefly to some points which it may appear desirable to notice in the present work.

The general and political history of the town would furnish matter for much interesting comment; but our observations must be limited to the rise and progress of its commercial and manufacturing celebrity. Situated in a valley surrounded nearly on all sides by hills, between which run rapid streams, and in a neighbourhood abounding with stone, iron-ore, and coal, Sheffield has always possessed peculiar natural facilities for the trade which has rendered it so famous. Its artisans are supposed to have made the bills and arrow-heads, which, in the days of our mediæval ancestors, were the pride of the English army; and cutlery, the perfection of which is still the greatest boast of Sheffield, was a distinguishing product of the town as early as the fourteenth century. Chaucer's well-known description of one of his "merrie train," informs us that

> "*A Shefeld thwytle* bare he in his hose,
> Ronde was his face, and camysed was his nose."

About the time of Edward VI., the oppressions of the Duke of Alva had caused many skilful artisans to quit the Netherlands and seek refuge in England, where they met with a favourable reception. The Earl of Shrewsbury, Lord of the Manor of Sheffield, was Chamberlain to Queen Elizabeth, and is supposed to have so exercised his courtly influence as to have led to the settlement upon his own estate of such of these emigrants as were workers in iron and steel, and therefore competent to promote its rising trade. Shears, scissors, sickles, scythes, and knives of every kind, continued to be made at Sheffield; but until early in the seventeenth century the place was by no means in a prosperous condition. By a survey taken in the year 1613, it appears that it then contained 2207 inhabitants: of whom the most wealthy are described as "100 householders which relieve others, but are poor artificers; not one of whom can keep a team on his own land, and not above ten who have grounds of their own which will keep a cow." A very few years later, however (in 1624), an Act of Parliament was passed "for the good order and government of the makers of knives, sickles, shears, scissors, and other cutlery wares, in Hallamshire and parts near adjoining it;" under the provisions of which the principal cutlers of Sheffield were incorporated for the protection of the trade, and especially to guard against the piracy of the marks assumed by individuals.

Still the trade made but slow progress, and it was not until the following century that it attained anything like its present importance. The manufacturers were men of small means: they were without water-conveyance to either Hull or Liverpool; pack-horses were the usual means of transit for their heavy goods, and the export trade, which has since grown up, was altogether unknown amongst them. Social and mechanical improvements, however, with increased intelligence and energy in the manufacturers, gradually extended the staple productions of the town; and in 1742 a fresh element was introduced, in the discovery, by Thomas Bolsover, an ingenious local mechanic, of the method of producing "plated" articles, by incorporating a thin plate of silver with the surface of an ingot of copper (or copper and brass), and then rolling the mass into a sheet, from which any description of goods might be formed, as in sheet-silver. The admirable and economical imitations of silver vessels thus produced soon acquired immense popularity; and the invention was extensively carried out by Joseph Hancock, a Sheffield manufacturer, who attained considerable eminence. To Mr. Hancock and Mr. Jessop we may also mainly ascribe the introduction of what is known as Prince's, or more commonly Britannia metal (called by the workmen, white metal). The extreme cheapness, lightness, ductility, and beauty of effect of this substance, at once brought it into general estimation; and it is now used to an enormous extent in the formation of tea-pots, coffee-pots, candlesticks, spoons, salvers, &c. From the nature of the metal, many articles may be produced in it by stamping; and the stamps employed may be made of cast-iron, or even brass, whereas costly engraved steel dies are necessary for stamping brass or plated goods. Into these and some other technical details, both of the steel and plate trade, we hope to enter hereafter, and we must close our present notice with a bare allusion to some of the numerous improvements subsequently introduced. The employment of "solid silver edges," as they are termed, for the more prominent portions of plated goods, obviated the objections to which the metal itself was liable, from its weakness in such situations, and from the silver surface being gradually rubbed off; and in the year 1831 a further improvement was introduced by Mr. Roberts of Sheffield, who, by a patent process, interposed a layer of white copper, or German silver, between the inferior metal and the silver; thereby adding much to the permanent beauty of plated goods. In the more substantial manufactures of the locality, the greatest triumph was achieved in 1786, by William Dunn, who first applied steam-power to the large grinding mills, in which one of the most important operations in cutlery is performed. Steam has since been applied to many of the preliminary processes of converting iron into steel; though the streams which first contributed to promote the trade of the district are still largely employed in working its machinery. The population of Sheffield has increased from less than 46,000 in 1801, to about 130,000 at the date of the last census.

We may here advert to the interesting fact, that, from the earliest periods till a comparatively recent date, the principal supply of British iron was derived from the southern part of England, and not, as now, from Staffordshire and the north. Mr. M. A. Lower* has given a copious account of the extinct iron-works of Sussex, referring to the sites of nearly one hundred different smelting-furnaces and forges. Innumerable fields of iron scoriæ still mark these localities; and, from the large number of Roman coins and fragments of pottery found in these cinder-beds, Mr. Lower infers that the works were carried on from the reign of Vespasian, or his successor Titus, to that of Diocletian. Although inactive for some centuries afterwards, the works were subsequently resumed. "Henry of Lewes" executed the iron-work on the tomb of Henry III. In the reign of that king the town of Lewes was allowed to take a toll from all carts laden with iron from the Weald of Sussex, and there are many curious records of the local iron-trade in subsequent reigns. The mansions and churches of the county abound with andirons, ornamental chimney-backs, and monumental slabs of iron, dating from the fifteenth to the end of the seventeenth century. There are no less than thirty iron monuments in the church of Wadhurst alone. Cannons made of iron-staves, hooped and banded together, are supposed to have been made in Sussex in the fourteenth century; and Holinshed records, that the first cast-iron cannons were also produced in the same county in 1543. The cast-iron railings of St. Paul's Cathedral were the produce of Lamberhurst in Sussex.

The fuel employed in this district for smelting the ore was derived from the extensive forests of the Weald (the Coit Andred of the Britons). In the reigns of Henry VIII. and Elizabeth, legislative restrictions were imposed on the destruction of the forest-timber from this cause, and the erection of new iron-works was prohibited. Eventually, about a century ago, the scarcity and cost of fuel led to the extinction of the Sussex iron-works.

* In the "Sussex Archæological Collections," published by the Sussex Archæol. Assoc. 8vo. vol. ii. p. 169; vol. iii. p. 240.

WILLIAM MORRIS
CARPETS IN THE MEDIEVAL STYLE DESIGNED BY PUGIN FOR ORACE [illegible] LONDON
LONDON PRINTED AND PUBLISHED BY [illegible] AND BY [illegible] MDCCCXXXIII

PLATE CVIII.

CARPET IN THE MEDIÆVAL STYLE,

DESIGNED BY PUGIN AND MANUFACTURED BY CRACE OF LONDON.

The display of carpets in the Great Exhibition of 1851 will be long remembered as amongst the most striking characteristics of that memorable collection. The carpets produced by British industry were then, for the first time, placed in comparison and contrast with the long-celebrated fabrics of Turkey, Persia, and India; and although some of the English specimens yielded to the latter in the highest qualities of harmonious design and colouring, it may be confidently asserted that they well maintained the reputation of our manufacturers.

The specimen we now engrave (rewarded by a Prize Medal) was, perhaps, one of the most meritorious in the whole Exhibition; displaying in a remarkable degree the admirable taste and feeling of the highly-gifted artist by whom it was designed. Aided, as Mr. Pugin fortunately was, by manufacturers unsurpassed in skilful execution, his designs were realised with a perfection seldom attainable; and in the present work—a carpet of mediæval pattern, adapted for the decoration of a sacred edifice—Mr. Crace has displayed at least an equal amount of ability with Mr. Hardman, Mr. Myers, Mr. Minton, and the other talented coadjutors of the late distinguished artist.

In connexion with our present plate, we propose to offer to the reader some notices (derived from various authorities) of the early use of carpets in this country; reserving for future articles a description of the processes employed in the manufacture of the different varieties of those objects, which have now become so essential to domestic comfort.

The Oriental origin of carpets is well known; and we still turn to the East for the finest and most luxurious fabrics of this description. Carpets of some kind—probably of fine needlework—were employed in the middle ages before the high altars, and in particular parts of the chapter-rooms of abbatial and other churches. Matthew Paris states that a Bishop of Toledo, in 1255, covered his floor with "tapestry." The same historian adds, that Eleanor of Castile, the faithful consort of Edward I., followed the example of this prelate, her fellow-countryman; and that the circumstance gave rise to some contempt, being doubtless regarded as an effeminate innovation. Bedside carpets in domestic buildings are mentioned as early as the year 1301; and in the romance of "Arthur of Little Britain,"—a work of the reign of Edward II.—there is a particular description of a sumptuous room, where, "round about the bed there lay on the floor carpets of silk, poynted and embroidered with images of gold." These, however, were evidently rare, and the floors of halls and other apartments were more commonly strewed with rushes: a custom which in some municipal buildings has been maintained, even in our own age. Describing the domestic edifices of the twelfth century, Mr. T. Hudson Turner observes, that "the floors were strewed with dried rushes in winter, and green fodder in summer;" and he states, that in the following century "the flooring of rooms on the ground story was sometimes boarded; but there is little doubt it was in general nothing more than the natural soil, well rammed down, over which a litter was thrown." It appears that the tables were often "fixed in the ground." The space below the dais was sometimes called "the marsh of the hall;" and, as Mr. Turner adds, "it was doubtless often damp and dirty enough to deserve the name." One of the characters in Lyly's "Sappho and Phaon" (1584), observes, "Strangers have green rushes, when daily guests are not worth a rush." The floor in the choirs of

churches was covered in the same way; and the "rush-bearing," or ceremony of bringing fresh rushes for that purpose, on the feast of the Dedication of the church, was always celebrated as a high festival. In 1577 "a lode of rushes" cost 15*s.*

Several "carpets" are mentioned in the will of Lady Hastings (1503); and in 1548 Lord Darcy bequeathed to one of his daughters his "best wrought silk carpet, bordered with crimson velvet," which she had made. The prejudice against carpets as articles of luxury long prevailed. Hall the Chronicler speaks of the Cardinal Bourbon as "a prelate more mete for a ladyes carpet than for an ecclesiastical pulpett;" and a "carpet-knight," or a "knight of the green-cloth," was a common expression of contempt for one who was knighted by court favour, and not for military service. Gawin Douglas, in his barbarous translation of the Æneid (1553), describes the "young gallants of Troy" as sitting down to meat "apoun rich bed sydis, oversprede with carpettes of the fyne purpoure." Somewhat later (1575), we find that Archbishop Parker possessed much valuable furniture and plate, including numerous carpets; for example, a Turkey carpet for the Presence Chamber, 5 yards long by $2\frac{3}{4}$ yards broad, valued at 3*l.*; an old Turkey carpet, 6*s.* 8*d.*; a long tapestry carpet, 3*s.* 4*d.*; a green carpet of broad-cloth, 5*s.*; "a little carpet of Bramage," 4*s.*; a silk Tournay carpet, 5*s.*; and others. About the same time there is an entry in the Household Book of Lord North, for "matting 3 chambers with Bedfordsheer matts, at 5*d.* the yard;" and "for grene table carpets, 3*l.* 7*s.* 6*d.*" Bacon, Shakspere, Ben Jonson, Beaumont and Fletcher, and other contemporary writers, frequently allude both to carpets and to the practice of strewing floors with rushes; and from the literature of the Elizabethan era in general, it appears that carpets were not then in general use for floors, but rather as covers for tables and stools, and for the side-boards, or court cupboards, on which the rich plate of the period was displayed. Thus, in the "Comedy of Errors," we are told that "in the desk that's covered o'er with Turkish tapestry, there is a purse of ducats;" and an inventory of the furniture at Hengrave Hall, in Suffolk, in 1603, contains the following curious items:—"One large coobard carpett of Turkeye work;" "one long Turkeye carpett, much of it red and yellow;" "carpetts to lay about the bed;" "a carpett of black velvet for the little bord;" "carpetts of Inglish work," with armorial bearings; "one square bord carpet cloth;" "a long bord cloth of greene clothe to laye over y^e^ carpett of y^e^ long borde;" and "carpets for the windows,* of Inglish worke, wrought with eglentynes." Hackluyt, in his Collection of Voyages, &c. (1600), was fully sensible of the excellence of Turkey carpets; for he observes, "If before you returne you could procure a singular good workman in the arte of Turkish carpet making, you should bringe the arte into this realme, and also thereby increase worke to your company." The "carpetts of Inglish worke" at Hengrave may have been tapestry, which was woven in England in the reign of Henry VIII. There is a tradition that the first woollen carpet woven in this country was produced at Wilton, where a very superior description of these fabrics is still made.

A considerable time elapsed before the use of carpets became sufficiently general to lead to their systematic manufacture in England; and the art of carpet-weaving was not established at Kidderminster till the year 1735, although the town had long before enjoyed an extensive trade in broad-cloths and other woollen and worsted goods. Some extensive tapestry works were established at Mortlake by Sir Francis Crane, in 1619; and an extraordinary amount of patronage and pecuniary aid was bestowed upon that manufactory by James I. and his two royal successors. In 1651 the establishment contained one room, eighty-two feet long by twenty broad, in which were twelve looms, and another about half as long with six looms. The famous manufactory of the Gobelins at Paris was founded by two brothers of that name in the reign of Francis I., and was at first limited to a superior process of dyeing. About the middle of the seventeenth century Colbert introduced there the weaving of the tapestry and carpets which have since become so celebrated, and the popularity of which gave a considerable impetus to the taste for such productions in England.

* This entry shows that the word "carpet" was formerly used in a more general sense than at present. Its etymology is, indeed, by no means clear. Some writers regard it as an adoption of the Dutch word "karpet," a floor covering. Cotgrave derives it from the French work "*cairin*, a Turkie carpet; such a one as is brought from *Caire* in Egypt." And Skinner suggests that the Italian *carpetta* may be "from *Cairo* and *tapets*; q. d. *tapes Cairicus seu Memphiticus*." The word "*tapes*" (the root of tapestry) signified, both in Greek and Latin, a carpet or covering for a bed or couch; and "*tapet*," used by Spenser to denote needlework, was also, at an early period, applied metaphorically to foliage, as being the tapestry of the grove. In a similar manner the Elizabethan poets commonly employed the word *carpet* to designate a lawn or greensward.

M. DIGBY WYATT DIREX.

F. BEDFORD LITH.

BOOKCOVER IN CARVED IVORY PRESENTED TO HER MAJESTY THE QUEEN BY THE EMPEROR OF AUSTRIA.

LONDON PRINTED AND PUBLISHED NOV.R 1ST 1852 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CIX.

PRECIOUS BOOK-COVER,

PRESENTED TO HER MAJESTY THE QUEEN BY THE EMPEROR OF AUSTRIA.

The carved furniture manufactured by Messrs. Leistler and Sons, of Vienna, will be remembered by every visitor to the Exhibition of 1851; and especially the Gothic book-case in oak, presented to her Majesty the Queen by the Emperor of Austria. This successful work of art was executed from the designs of Bernardo di Bernardi, architect, of Vienna, assisted by Joseph Kranner of Prague. It contained some exceedingly beautiful and valuable books, bound in a costly and magnificent manner, forming a portion of the Imperial gift. The taste and skill displayed in the binding of these volumes has been somewhat overlooked in the admiration elicited by the book-case which contained them. Our present illustration will, however, it is hoped, do justice to the merit of one of these choice works of art, and may serve to corroborate the statement in the "Official Descriptive Catalogue," that whilst "the manufacture of fancy articles in leather has, of late years, made great progress in Austria, this has been particularly the case in the trade of bookbinding, both in Vienna and Prague, where that branch of trade is conducted on a large scale, both in supplying the internal demands of the empire, and for exportation."

As connected with the subject of our present plate, we purpose adding to the historical and practical notices of bookbinding already given, some account of the manner in which the mediæval manuscripts were bound and ornamented. Produced as those manuscripts were by unwearied skill and labour, the deep religious feeling and love of learning which characterised the middle ages caused them to be decorated in a remarkably elaborate style. The Sacred Volume, in particular, was often bound in velvet and other costly materials, and adorned with gold and silver ornaments of exquisite workmanship, the effect of which was increased by the tasteful introduction of enamels and precious gems. Copies of the Scriptures thus enriched were frequently given by kings and emperors to monastic bodies, and regarded by the latter as amongst their most valued treasures.

Among the earliest instances on record of precious bookbinding,* we may especially notice the famous Durham Book of the Gospels. This was written in memory of St. Cuthbert, by Egfrith, who was made Bishop of Lindisfarne, A.D. 698. Bede informs us that on the death of Egfrith, in the year 721, his successor bound this book "in gold and precious stones." A Saxon "gloss," or interlinear version of the Latin text, was added by Aldred, a priest of Durham, about the year 950; and the manuscript was preserved in the latter monastery till the Reformation, when it was ruthlessly stripped of its jewelled covering. It ultimately fell into the possession of Sir Robert Cotton, and its venerable antiquity, with the beauty of its calligraphy and illuminations, render it one of the most interesting manuscripts preserved in the British Museum.†

In the year 780, Offa gave to the church of Worcester "a large Bible, with two clasps made of the purest gold." About ten years later Charlemagne granted to the monastery of Sithiu a right of hunting,

* The examples referred to in the present article are more fully noticed by Mr. Astle in the "Archæologia," vol. xiii. p. 208; in Warton's "Anglia Sacra;" in Dr. Dibdin's "Bibliomania;" in the Rev. R. S. Maitland's Essays on "The Dark Ages," 8vo. 1845; and in a learned and excellent volume by Mr. F. S. Merryweather, entitled, "Bibliomania in the Middle Ages," 8vo. 1849. The inventories in Dugdale's "Monasticon," abound with references to richly-bound manuscripts.

† Cotton MSS. Nero. D. IV.

in order that they might make of the skins of the deer they killed not only their gloves and girdles, but "covers for their books." In the year 814 Angilbert, abbot of St. Riquier, gave to his monastery, besides 200 other books, "a copy of the Gospels written in letters of gold, with silver plates, marvellously adorned with gold and precious stones." Everhard, count of Friuli, about the middle of the ninth century, bequeathed to his children a Gospel bound in silver, and another in ivory; and Pope Leo III. gave to a certain church a copy of the Gospels so ornamented with gold and precious stones, that it weighed 17 lbs. 14 ozs.

About the year 1000, Godeherd, bishop of Hildesheim, adorned the covers of books with small stones of black, white, red, or variegated hues, cut and polished in the manner of gems; and he employed the children and other dependants of the abbey to collect pebbles for the purpose. Gold and silver bindings are frequently mentioned in the eleventh and twelfth centuries, and it is recorded that, in the year 1133, Nigel, bishop of Ely, was plundered by some of King Stephen's soldiers, and robbed of his own copy of the Gospels, which he had adorned with many sacred relics. This practice of inserting relics, or religious emblems, in the covers of books was not uncommon. As Dr. Dibdin observes, "in the interior of the binding, next to the leaves, there was sometimes an excavation in which a silver crucifix was carefully guarded by a metal door with clasps;" and at a Visitation of St. Paul's Cathedral, in the year 1295, there were found twelve copies of the Gospels, all adorned with silver, some with gilding, pearls, and gems, and one which is thus described: "Textus ligneus, de super ornatus platis argenteis de auratis, cum subtili triphorio in superiori limbo, continens xi. capsas, *cum reliquiis* ibidem descriptis."

The monastic establishment at Ely possessed, at the end of the twelfth century, no fewer than thirteen fine copies of the Gospels, beautifully bound in gold and silver, which William Longchamp, bishop of that see, sold to raise money for the redemption of Richard I. from his captivity,—"pro Regis Ricardi redemptione." Henry de Estria, Prior of Canterbury in 1285, has left a catalogue of the library of that church, which included twenty-five copies of the Gospels. Some of these were in a splendid co-opertoria, or book-cover, of gold and silver, and others exquisitely ornamented with figures of our Saviour and the four Evangelists. To pass over Richard de Bury, bishop of Durham, author of the "Philobiblon," who constantly employed a body of scribes, illuminators, and binders, we may mention a Grael, written by order of Wheathampsted, abbot of St. Albans in the fifteenth century, so superbly illuminated and bound as to be valued at 20*l.* sterling; and William of Malmesbury mentions a co-opertoria, in the formation of which twenty pounds and sixty marks of gold were used.

With the introduction of printing a more ordinary description of bookbinding was necessarily adopted; and it was probably a manuscript of early date which is described as follows, amongst the treasures in the Jewel House of the Tower of London, in the reign of Queen Elizabeth:—"A booke of golde, enameled, clasped with a rubie, having on th'one syde a crosse of dyamounts and vj. other dyamounts, and th'other syde a flower de luce of dyamounts and iiij. rubies, with a pendaunte of white saphyres and the armes of England; which booke is garnished with small emeralds and rubies hanging to a cheyne, pillar fashion, sett with xv. knottes, everie one conteyning iij. rubies (one lacking)." In 1494, Brandt, the author of the "Ship of Fools," speaks of books,

> "Full goodly bounde in pleasante coverture,
> Of damas, sattin, or else of velvet pure."

It is needless, however, to multiply references to the elaborate bindings of former days; but we cannot abstain from adverting to the wholesale destruction of those interesting specimens of art which took place at the time of the Reformation. It is impossible to estimate the extent to which this was carried, or the degrading uses to which the splendid manuscripts were applied. In 1550 Henry VIII. issued an order for the purging of his library at Westminster, directing that all superstitious books, such as missals, legends, &c. should be culled out, and the garniture of the same, being either gold or silver, delivered to Sir Anthony Aucher. Bale informs us that, "A grete nombre of them whych purchased those superstycyose mansyons [the suppressed monasteries,], reserved of those lybrarye bookes, some to serve theyr jakes, some to scour theyr candelstykes, and some to rubbe theyr bootes; some they solde to the grossers and sope-sellers, and some they sent over see to the bokebynders, not in small nombre, but at tymes whole shippes ful." Years afterwards the broken windows of Malmesbury were patched with fragments of the Abbey manuscripts, and the bakers of the town had not consumed all the stores they had accumulated from the same source for heating their ovens.

GROUP OF OBJECTS IN GLASS BY CORNING GLASS WORKS AT CENTENNIAL EXPOSITION

PLATE CX.

GROUP OF OBJECTS IN GLASS,

BY APSLEY PELLATT, W. NAYLOR, AND J. G. GREEN, OF LONDON.

We have had occasion in a previous notice (Plate XVIII.), to draw attention to the beauty of the design and material, as well as the admirable finish exhibited in the works of the above firms, qualities which were eminently preserved in the objects grouped in the present Plate. We also briefly noticed the steps by which the manufacture had been developed and perfected in England; on the present occasion we shall make a few observations on the peculiarities of the Venetian processes, upon which the English, and, indeed, those of the whole continent of Europe, were mainly based.

According to local tradition, the manufacture of glass at Venice is coeval with the existence of the city itself; and a series of decrees and orders of the government of the Republic, commencing at the latter part of the 13th century, prove that the art was carefully promoted until the time when a change in the public taste deprived Venice of her profitable monopoly. During the 13th century the Glass-houses became so numerous at Venice, as to subject the city to great danger by fire, it was therefore ordered by the Great Council, in 1291, that all the Glass-houses should at once be removed from the city to some separate island. Murano was fixed upon for the purpose, and was soon covered with different establishments.

The taking of Constantinople by the Turks, in 1453, drove the skilled Greek workmen thence to Italy, and at that period the glass-manufacturers at Venice learned from the exiled Greeks their modes of enriching their productions by colouring, gilding, and enamelling. In the early part of the 16th century, the Venetians appear to have invented the art of introducing threads of coloured and opaque white (*latticinio*) glass into the substance of the articles they manufactured, forming a beautiful and enduring enrichment, suitable from the lightness of its character to the delicate forms of the objects to which it was applied. The secret of this art was most jealously guarded by the State, and the severest penalties were enacted against any workmen who should divulge it, or exercise their craft in any other country: on the other hand, the masters of the Glass-houses at Murano received great privileges, and even the workmen were not classed with ordinary artizans. In 1602 a gold coin was struck at Murano, with the avowed object of handing down to posterity the names of those who established the first Glass-houses on the island, and from it we learn that they were the following:—Muro, Seguso, Motta, Bigaglia, Miotti, Briati, Gazzabin, Vistosi, and Ballarin. For about two centuries the Venetians contrived to retain their valuable secret, and monopolised the glass trade of Europe; but at the commencement of the 18th century, the taste for heavy cut glass began to prevail, and the trade was dispersed to Bohemia, France, and England, so that the manufacture of filagree glass at Venice was gradually discontinued.

The glass vessels ornamented with white and coloured threads, are formed out of an assemblage of small cylindrical sticks of glass, each about one-eighth or one-tenth of an inch in diameter, and of various colours, disposed by the workmen in a certain arrangement with others of clear glass, as we shall presently describe. The method of making the little sticks of glass is as follows:—The metal being mixed of the desired colour in the crucible, the workman takes up a small quantity of it on the end of his blowing-iron, and rolls it into a cylindrical form, about two or three inches long, on the *marver;* having allowed it to cool a little, he plunges it into another crucible containing clear metal, and again reduces the mass on the marver to a cylinder of about three inches in diameter; this is then heated and drawn out to the thickness that the sticks

are required, and broken up into lengths for use. The process for producing small sticks, containing several threads of coloured glass, is more or less complicated, according to the manner in which the coloured threads are disposed. For the simplest, the workman puts several sticks containing only a single thread, alternated with others of clear glass, either round a cylindrical mould, which is then filled with clear glass, or else encloses them in a covering of the same; a cylinder is thus formed, which, when drawn out, contains threads of coloured glass, disposed in various patterns according to the manipulation used by the workman in drawing out.* When flattened in the subsequent processes, the lines in these sticks produce the effect of zig-zag and other patterns seen in the Venetian glasses.

In order to make use of the prepared sticks in the fabrication of any glass vessel, the workman places a number of them round the inner face of a cylindrical mould, and separated by sticks of clear glass, so as to form any arrangement that may be desired, the whole is then heated so as to be ready to combine with other glass metal. The glass-blower next takes up a bulb of metal on the end of his blowing-iron, and having brought it to the proper form on the marver, inflates it into the mould, which causes all the sticks to adhere to the outside of the bulb, so that the whole can be taken out of the mould, and the assistant then secures the sticks by passing a strip of softened glass round them. The bulb is then heated at the furnace, and worked on the marver until the small sticks are completely incorporated with the mass; the workman next squeezes together the bottom with pincers, so as to bring all the ends of the sticks together in the centre, and proceeds to form out of the bulb any vessel that may be desired in the ordinary way. If the bulb is twisted in forming the vessel, then the coloured lines will take a spiral form, otherwise they will run straight from the top to the bottom, in the centre of which they will appear united. The spiral form was called by the Venetians *ritorcimento*, and vessels ornamented in this manner *vasi a vitortoli*, or *ritorti*. The most elaborate variety of the manufacture practised at the Glass-houses of Murano, was the forming of vessels in two thicknesses of glass, laid over one another in a soft state, and then fused together; by this means the network patterns were produced that are seen in many specimens of the manufacture. The coloured threads in one layer were worked into a spiral in one direction, and in the other, in the opposite direction, so that when superimposed upon the first an effect of network was produced. These vessels were called *vasia a reticelli*. There are different opinions as to the exact manner in which this process was effected, and the modern imitations have never entirely succeeded. Many other modifications of these processes were practised at Murano, which our space will not permit us to detail. These delicate and graceful manufactures were superseded by the taste that arose for cut glass;† but the ancient manufacture is still carried on at Venice on a limited scale.

* For a particular account of these, see M. Boutem's "Exposé des moyens employés pour la fabrication des verres filigranés."

† It is generally supposed that the art of glass-cutting was invented by one Caspar Lehmann, who, in the year 1607, was in the service of the Emperor Rodolphus II. as a lapidary. It is, however, sufficiently proved by various articles still preserved in collections of antiquities, that the Greek artists formed upon glass both raised and engraved figures; and although it is probable that pieces of glass may have been moulded like paste,—an art that was very anciently understood,—it is certain that they cut all kinds of ornaments on glass with considerable accuracy in the modern manner. The learned Natter indeed affirms, in his treatise on engraved stones, that the ancients even employed the same instruments as the moderns, and it certainly does appear that they used a wheel which moved in an horizontal direction above the work-table, and seems to have been in most respects similar to the common lapidary's wheel. The ancients also employed diamond-dust for the purpose of polishing various kinds of precious stones, but it does not appear that they were acquainted with the mode of cutting glass with a diamond-pencil. The oldest glaziers, with whose manner of working we are acquainted, used emery with sharp-pointed instruments of steel, and a red-hot iron, by means of which they gave the necessary direction to the rents.

The first mention that is made of a diamond being employed for writing on glass occurs in the history of Francis I. of France, who inscribed the following lines on a window at the castle of Chambord near Blois, in order, as it is said, to intimate to the Duchess of Estampes that he was jealous:—

"Souvent femme varie
Mal-habil qui s'y fie."

It has also been generally imagined that the art of etching on glass, which is effected by an acid, that dissolves silicious earth, was first invented in 1771 by a German chemist named Scheele, but it can be proved that it was discovered as early as 1670 by an artist named Schwanhard, who was celebrated as a glass-cutter, and by the mere accident of some aquafortis having fallen on his spectacles and corroded them.

JEWELLERY AT RUDOLPHI OF PARIS

PLATE CXI.

JEWELLERY,

BY RUDOLPHI OF PARIS.

For the improvement effected in France in the manufacture of artistic jewellery, by the revival of the mediæval processes of enamel and niello, and the introduction of the highest class of chasing and finish into pieces of silver plate, and by giving to the fanciful taste of the French workmen a more truly artistic direction, the world is greatly indebted to the late M. Wagner, whose talent as an artist has obtained, for the works issuing from his *atelier*, a European reputation.

M. Carl Wagner, whose father was a goldsmith of considerable reputation at Berlin, originally established himself in that city in conjunction with his brother, M. J. Wagner; he conceived, however, that he should find more ample scope for his talents at Paris, where he accordingly went, and associated himself with M. Mansion. He was liberally encouraged by his Majesty Louis Philippe, the Duke of Orleans, the Duke de Luynes, the Prince Soltikoff, M. Rothschild, and other discriminating patrons of art, for whom he executed many works of the highest character, rivalling in boldness and delicacy the finest productions of the great Italian school of jewellery. His most important works were in the possession of these patrons, and also of the King of Prussia, for whom he executed the well-known shield of the Amazons, which for a long time was held to be an old work. He executed a great number of very tasteful small works in coral, pearls, and precious stones, set in elegant borders of ornament; and it is rather remarkable that these very much resemble those very beautiful works executed for Augustus the Strong, king of Saxony and Poland, by the brothers Dinglinger. He also revived and practised the art of mixing and introducing the niello, and his productions even surpassed those of the celebrated Tulaë manufactories.

M. Wagner had amassed a considerable fortune, and had received the honorary distinction of being decorated with the cross of the Légion d'Honneur, but while yet in the prime of life he met with his death by the accidental discharge of his own fowling-piece, which he was carrying, having just returned home from shooting. A short time previous to this accident he had associated with himself M. Rudolphi of Copenhagen, his *chef d'atelier*, and by this gentleman the business is now continued with great success. Many of the works exhibited by M. Rudolphi were executed from models by his late partner, and were specially noticed, as they fully deserved, in the Report of the Jury.

The death of M. Wagner was deeply regretted by both artists and workmen, as he was considered to have given an impulse to working in the precious metals in Paris, owing to which such great perfection has since been attained.

The names of Wagner and Vechte will long be associated with the revival of an improved style in the design, and great artistic skill in the execution of works in the precious metals; and the results of these gentlemen's labours so admirably confirm Mr. Redgrave's able remarks on the theory of the subject,* that we think the latter may be appropriately introduced into our present notice. On the subject of ornamentation Mr. Redgrave says:—"In considering the scope of the ornamentist, it will be evident that in his highest

* "Supplementary Report on Design," appended to the Jury Reports on the Great Exhibition.

aim he is assimilated to the artist, so that it becomes extremely difficult, nay, impossible to separate them, or draw any line of distinction between the one and the other. Thus the beautiful shield, which embodies the description given by Homer of that of Achilles, designed by Flaxman, and exhibited in electrotype in the Fine Arts Court, and that skilful specimen of embossed work, the shield by Antoine Vechte, in the collection of Messrs. Hunt and Rosskell, are at one and the same time works of art and works of ornament. From this high range the occupation of the ornamentist descends by imperceptible degrees; not, as in the case of the artist, through the more and more close *imitation* of Nature, but by selecting from her whatever is beautiful and graceful, irrespective of her individual embodiment of these qualities, and adapting them to give pleasure separately, and apart even from any wish to recall the objects themselves, from which he has sought or obtained them: his effort is to give the most characteristic embodiment of those natural objects (viewed in relation to some peculiar quality, form, or colour, or some particular adaptation required), rather than to imitate; indeed, he departs more and more from imitation as he diverges from the path of the artist to occupy his own separate province as an ornamentist. These are truths to be continually borne in mind, as they constitute the only cure for that false style of ornament, so largely pervading the manufactures of the day, and already so frequently alluded to under the name of *naturalism*, consisting of the mere imitative rendering of natural forms as ornament, and which is nowhere more largely exhibited than in works in the precious metals, and in the affiliated manufacture of plated and Sheffield wares. A great cause of the faults exhibited in these works seems to be, that they have received their design rather from the artist than the ornamentist; thus we have figures, having no constructive connexion with the work ornamented, but rather of the nature of statuettes, perched wherever a ledge or shelf offers accommodation for them: these are, generally, as *imitatively* treated as the material used and the powers of the artist permit, and are applied to inkstands, candelabra, and works of the like kind requiring a purely *ornamental* treatment."

Mr. Redgrave points out, also, the want of adaptation of the design to the material, too frequently visible in works even of the most ambitious character; and then explains the cause, namely, "the separation of the work of the artist and the silver workman: hence, casting and chasing are the means of production here, whilst the foreign artist *himself* uses the hammer and the punch, and beats out with his own hand the creations of his fancy or the inventions of his skill. Casting and chasing in their proper application are means only of producing and perfecting a thing, after the design and model have been executed: even in the hands of the artist himself they are but completing and perfecting processes; the work, as far as the invention goes, is already done before it is committed to the mould, and the chaser does but perfect what the caster has produced with more or less excellence, according to the art-knowledge which he possesses: but by the embossing process, called *repoussé*, the artist himself produces the work by punching the plate of silver on a soft matrix, and continually annealing it in the course of his labours. By this embossing process the mind of the artist is working with every stroke of the craftsman's hammer; and not only does his own hand work out every characteristic quality of the surface, whether of flesh or of drapery, and his knowledge supply every essential detail, but thoughts seem to arise out of the very method and means of working, and each stroke on the punch may prove a suggestion leading to new fancies, or be followed out in more happy details. Even from the accidents of annealing, constantly necessary during the work, the colouring of the metal in the furnace calls up new thoughts, like those which arise in the mind of the poet watching the glowing embers, and the artist at once embodies his new-found fancies. Chasing has none of these suggestions; it only perfects: whilst embossing is to it what etching in the hands of the painter is to engraving. The very means in the one are suggestive in every stage of the progress; while the other is only a more or less complete copy of a previously-designed original. The beautiful works of Antoine Vechte, both the shield before alluded to and the vase representing the story of the Titans (Plate XXVII.), with the beautiful centre-piece, wrought in silver, partly by the same process, the work of Wagner of Berlin, are rare specimens of this mode of working, and its suggestiveness will be at once understood by those who are at the pains to examine them, since they all three have parts only partially finished, such parts remaining, as it were, in the state of sketches, and speaking in this state so strongly to the inventive fancy of the artist, that he who looks into them feels a strong desire to work out the thoughts and fancies they cause to crowd upon him. This mode of workmanship tends also to a unity between the ornaments and the object ornamented, whilst chased work and cast figures, too often necessarily wrought apart, and applied to the group or thing ornamented, have oftentimes a contrary tendency."

E POZZI DEL

M.D.GRY WYATT DIREXT

J.SIEGH LITH

SPECIMENS OF LACQUER WORK FROM CASHMERE

LONDON PRINTED AND PUBLISHED NOVR 1ST 1852 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CXII.

SPECIMENS OF LACQUER-WORK FROM CASHMERE.

In the notices appended to plates No. III. and No. XXXII. we made some observations upon the nature of the processes involved in the manufacture of Indian and Chinese lacquer-work; on the present occasion our attention will be confined to the peculiarities of design exhibited in works of a similar character.

It has been admirably remarked by the learned Müller,* that "before the intention of any designer can be expressed in a complete form, that intention must be so embodied as to display a clear recognition of certain *rules*, derived from the observation of mathematical relations, or of organic forms imbued with vitality; unless the work in its execution display such a recognition it cannot be a work of art. It is in obedience to the above condition that, in every period of history, those who have desired to convey their own impressions most forcibly to the minds of others have slightly departed from the direct imitation of nature, substituting for it certain modifications, which are known to artists as conventions. These conventions have gradually been reduced to system, by the labours of each succeeding generation of students, accumulating the results of the experiments in the treatment of form made by the individuals who preceded them."

No one can examine the patterns engraved in the plate under consideration (remembering that they were intended for the decoration of portable objects), without observing that their designer, in the treatment of the motive—a combination of natural flowers—which serves as their basis, had open to him several modes of representation. He might, in the first place, have covered the whole surface with plants, thrown anyhow together, much as they grow in nature. Had he done so, his ornamentation would have afforded no pleasure, from its author's evident ignorance of those "mathematical relations," which, from their regularity, convey the sense of law and order, and by a knowledge of which he might have been enabled to make the forms of his enrichment harmonise with those of the object he was employed in decorating.

He might, in the second place, have drawn his flowers in perspective, imitating the play of Nature, which permits one leaf or petal to conceal another, or to become foreshortened as it advances or recedes from the spectator; here he would have been forced to assume some one, or even many points of view. Such a mode of treatment would obviously, therefore, have produced distortion, since it would only have been necessary to turn the object round, or to elevate or depress it above or below the level of the points of sight assumed, to make the whole a palpable misrepresentation.

He might, in the third place, have introduced light and shade to assist the developement of his forms and the reality of his imitation of Nature. Had he done this, it would have been requisite permanently to fix the object decorated in one position in reference to the light by which it might be illuminated, so that the shaded sides and shadows projected by the forms of the article might accord with those of the flowers by which it was ornamented. The consequences of such a mode of representation must be at once evident; by removing the object from one side of a window to the other, the whole scheme of projection would have been stultified, since the shadowed parts of the flowers would have supposed the light to be on one side, while those of the box or similar object would have proved it to be on the other.

The artist might, in the fourth place, in the colouring of his ornamentation, have imitated those delicate gradations and air-tints by which Nature teaches the eye to convey to the mind a sense of the distances intervening between the different plans upon which the objects imitated are situated. What would have been the

* "Archaologie der kunst Einleitung zur Theorie."

result? The more perfect the imitation, the less the probability of its ever proving agreeable; since that delicate grey tint, which might satisfactorily indicate that a white flower was twenty yards off, would be evidently absurd if the object decorated with a white flower so tinted were held at arm's length, and it would manifestly be no less absurd to imagine that any two objects painted upon a box a foot cube were five feet or forty feet from one another.

From these few cases it must be apparent how limited, under many circumstances, the artist's power of direct imitation must be, and how important it is that he should rightly understand how nicely those due conditions of conventionality, which are too frequently either misapprehended or overlooked by our artists in the present day, are appreciated and practised by the Indian workmen. Had we not already quoted Mr. Owen Jones's excellent remarks upon this subject, we should have felt inclined to have reproduced them on the present occasion, as they could not possibly have been better illustrated than by the pattern engraved in the plate under consideration. In them may be seen how cleverly an able designer may express in surface decoration the character of any object, without adopting any of those four obvious systems of representation which have been pointed out as so dangerous. With a skill rivalling that of Magna Græcia or Etruria, whose vases are covered with decoration, which assists rather than interferes with their graceful contours, the artists of Cashmere and Lahore have arrived by practice at such an orderly distribution of the forms and lines of their sprays and leaves, as, without sacrificing too much of that negligence which is so graceful in nature, yet serves to apportion the whole in subservience to the forms requiring enrichment; they have adopted such a mode of geometrical projection as best conveys the idea of each flower contrasting its front and its side-view, and where either approach a regular figure, inclining rather to make it tell forcibly than to suppress it; they have also acquired the power of so bringing up the ground of their patterns, allowing it to appear here and there in the body of their flowers, or of treating an outline inclining either to black, white, or gold, as to define the form of every leaf and fibre clearly without employing any positive light and shade; and, finally, they have taken care so to maintain the intensities of the various tints, by alternately deepening an advancing colour, and lightening a retreating one, that they have succeeded perfectly in keeping that flatness of surface which is so essential to the preservation of the form of the object decorated. As a general rule it may be remarked, that the plants most frequently introduced into the ornamental compositions of the Cashmerians are the rose, the pink, and the jessamine, the favourite and abounding produce of their proverbially fertile valleys.

P.H. DELAMOTTE, DEL.

BY PERMISSION OF H.R.H. THE PRINCE CONSORT.

F. BEDFORD, LITH.

CHOCOLATE CUP IN SILVER BY LEBRUN OF PARIS

LONDON, PRINTED FOR PUBLISHED NOV. 15TH 1852 BY DAY & SON LITH. TO THE QUEEN.

PLATE CXIII.

CHOCOLATE CUP IN SILVER,

BY LEBRUN OF PARIS.

Among the many distinguished names which are recorded in the notices of the French Juries, appointed to decide upon the merits of objects executed in the precious metals and contributed to the various national expositions, there are few which were earlier, or more frequently selected for commendation, than that of Lebrun. All, who had an opportunity of observing the beautiful design and refined workmanship of the object now engraved, will readily appreciate the correct judgment which induced the juries of the years 1823, 1827, 1834, 1839, 1844, and 1849, to successively award the bronze, the silver, and the gold medals, together with "rappels" of the two latter, to the maison Lebrun.

The subject of the history of the production of beautiful gold and silversmith's work in France has of late years occupied the attention of many accomplished writers, such as M. Potier, M. Du Sommerard, M. Jacob, M. Ferdinand Seré, M. Delabarte, M. Didron, and MM. the Abbés Texier and Martin, and the mass of interesting and instructive details which have been collected by them merit the serious study of all interested in the subject, either in an archæological point of view, or with regard to the revival of those processes which are now all but extinct, and which in the old times were the pride and glory of every handicraftsman. From such writers we have gleaned a few particulars concerning the developement of the art of the silversmith in France, and we propose in the present notice to trace rapidly the leading points which occur from the earliest ages through the mediæval period, reserving for subsequent consideration the peculiarities of the productions of the Renaissance and later periods.

It is a singular fact, to which France forms no exception, that the personal ornaments of all barbaric races appear to have been almost exclusively of gold, and silver to have been of comparatively rare occurrence. It was generally in connexion with the services of the Church, and in the coinage, that silver first abounded; and the earliest application of art, or even of skilled labour, to the productions of such objects in France was introduced by the celebrated patron of the gentle craft,—St. Eloi. This rare and truly great man, whose life is well known through the writings of his disciple St. Ouen, was successively a workman, a simple priest, a bishop, and ultimately minister to his sovereign, King Dagobert; who continued to Eloi that esteem and patronage which he had already gained from his father, Clothaire II. Eloi executed many works for the king, amongst others that of engraving and stamping the coinage, as is attested by the fact that his name appears on the reverse of the five types of the gold sol, which are almost the only authentic remains of the numerous works of the patron saint of the French goldsmiths. Four of these coins belong to the reign of Dagobert I., and the other to that of Clovis II. Eloi continued his labours at the goldsmith's art even after he had attained his high ecclesiastical position. We are told that the châsses of St. Genévière, St. Germain, St. Martin at Tours, and St. Denis at Paris, owed to him their origin. On the latter shrine he seems to have bestowed his work with a lavish hand, so as to render it the greatest ornament of France. The pulpit, the cross, and the frontal of the altar, were monuments of his skill and piety. But his most important work was the establishment of the monastery of Solignac, near Limoges; instituted for artist-monks, and more particularly devoted to the art of the goldsmith. Thillon was the second abbot, and under the direction of this able pupil of the

founder a great number of objects were executed by the community for the service of the Church. Solignac was founded in 631, and the original charter, with the signature of the pious founder, still exists. Eloi also founded the convent of St. Martial, in the Isle de Paris, where under the first Abbess St. Aure rich embroidered vestments for the Church were worked by the three hundred nuns.

It was, doubtless, from these artist-monasteries that Charlemagne, about a century later, was enabled to procure artists for his great works; and his sword and crown, which alone have come down to us, are as likely to have been of French as of Italian or Byzantine manufacture. The only other work of art in the precious metals that remains of the period of the Carlovingian dynasty is the cover of the Bible of Charles the Bald, which consists of two carved ivory tablets, framed in silver and filagree, set with precious stones. The goldsmith's work of this period, and for nearly three centuries subsequently, is distinguished rather for the costliness of the gems, with which it is loaded in barbarous profusion, than for its design and artworkmanship.

Several bishops of Auxerre, during the ninth century, enriched their cathedral with costly gifts, of which, however, we have no description beyond the names of the articles. The shrine which Hincmar, bishop of Rheims, caused to be made for the church of Remi in 852, was surrounded, we are told, by twelve figures of bishops. Perhaps the most important work of the goldsmith's art in France during the tenth century was the altar-dossel which Bishop Seguin presented to the Cathedral of Sens, in the year 990, and which was preserved until 1760, when it was melted down by Louis XV. to meet his exigencies. From a drawing then taken we learn that this work contained numerous figures, which were all beaten up out of thin plates of gold. King Robert endeavoured to propitiate the clergy by rich presents, the most important of which were executed by Odoram, a monk of Dreux, who was no doubt, one of those artist-canons so common in the cathedrals of that time. The monk Theophilus, whose writings are generally supposed to be of this period, gives most minute directions for the fabrication of various articles of plate for the service of the Church.

In the twelfth century, the most remarkable works are those which the well-known Abbot Suger presented to the Abbey of St. Denis, and he has fortunately left us some account of these in his work "De Rebus in Administratione sua Gestis." Our space will not permit us to enumerate all the works there described, some of which are preserved in the collections of the Louvre and the Bibliothèque National. But Suger's great ambition was to construct a crucifix of gold that should surpass the cross attributed to St. Eloi; and, to accomplish this, he employed six or seven Lorraine workmen for about two years, and used a vast quantity of jewels. Other works of this period are figured by Du Sommerard in his Atlas, and are preserved in the treasuries of the cathedrals of Rheims, Chartres, Troyes, Toulouse, and other cities.

During the long reign of St. Louis, 1226 to 1270, all the arts made great progress. It was in the latter part of this period that Etienne Boileau, Provost of Paris, composed his celebrated "Livre des Métiers," which, at the eleventh chapter, treats of the gsldsmiths, and gives a curious insight into the mysteries of the craft. Among the actual remains of the thirteenth century we may mention the gold chalice of St. Remi, from the cathedral at Rheims; the châsse of St. Taurin at Evreux; that of St. Romanus at Rouen; the clasp of St. Louis, preserved in the Louvre; besides others in the trésors of the various cathedrals.

In the early part of the fourteenth century the finances of the country were exhausted by the wars with England, so that the goldsmith's trade was not in a flourishing condition; but when peace had been restored by Charles V., we find the king and his brothers in possession of a vast amount of jewellery and plate. The principal objects on which the skill of the artist was displayed are the ewers, hanaps, salt-cellars, fountains, and, above all, the *nefs*. The latter was a small casket in the form of a vessel, and contained the drinking-cup, knife, fork, &c., of the prince. The articles for sacred uses comprised crosses, chalices, burettes, clochettes, bookcovers and clasps, censers, and relquaries, which at this period often were in the form of statues. We may mention the silver gilt statuette of the Virgin given by Jeanne d'Evreux to the Abbey of St. Denis, in 1339; also a similar statue, of better execution, in the trésor of the cathedral of Rheims; the mounting of the famous cameo of Jupiter, once belonging to the Sainte Chapelle, &c. During the reign of Charles VI. and of his son, the wars again caused much valuable work to be melted down, but the trade soon revived after the return to Paris of Charles VII., in 1438. Before the end of the century, however, it was more particularly confined to articles of jewellery, and we propose to trace that particular branch of the art in our next notice.

SPECIMENS OF STAINED GLASS BY LUSSON & BY GERENTE OF PARIS

PLATE CXIV.

STAINED GLASS WINDOWS,

BY LUSSON AND BY GERENTE OF PARIS.

The first mention of the employment of coloured glass in France* is found in the historian of St. Benigne of Dijon, about 1052, who mentions an antient "vitrail," representing St. Paschasius, as existing in that church. He assures us that it was taken from the old church restored by Charles the Bald; but, without relying entirely upon the latter part of his statement, we may safely conclude that this figure of St. Paschasius was as old as the ninth century.

Although several fragments of coloured glass of the middle of the twelfth century still exist in France, we may pass on to the most important work of that period; viz. the windows of the abbey church of St. Denis, designed and executed under the immediate superintendence of the Abbot Suger, who tells us, in his account, "De rebus in administratione sua gestis," that the first window executed contained the root of Jesse, and that a number of skilful artificers of various nations were employed upon the work. Of all these windows, two only remain; the design of which consists of a double row of medallions and rosettes upon a deep blue diapered ground—the drawing is rather coarse, and the figures ungraceful.

This work of Suger's appears to have given an immense impetus to the art, for a little later we find Theophilus praising the "precious variety of windows" in France. During the thirteenth century a great number of very important works in stained glass were executed, among which we may mention those at Poitiers, Sens, Chartres, Paris, Rheims, and Bourges. All of these have been more or less illustrated by the French antiquaries, and they appear to be very similar in general arrangement. Thus the windows of the chapels and aisles generally contained a series of subjects, illustrating some legend or parable, in small medallions upon a deep blue ground, surrounded by an elaborate border; those of the clerestory were filled with single figures, often of colossal size, representing personages from the genealogy of our Saviour, prophets and sybils, or benefactors of the church. The lowest compartment is frequently devoted to a representation of the trade of the guild, at whose expense the window was executed.

Probably one of the most complete examples of the glass of the middle of the thirteenth century is that of the Sainte Chapelle at Paris. There the windows are large, and they are consequently filled with dark and rich glass in order to subdue the light. According to Mr. Poynter† there are about eight hundred subjects still remaining in these windows, containing from two to three thousand figures. The drawing is good, and certainly superior to that exhibited in works of the contemporary English school; the faces are expressive, and the drapery well cast.‡

* The early French historians frequently allude to the glazing of church windows. Thus Gregory of Tours relates that a soldier entered the church at Brionde by breaking one of the windows; and we learn from the poems of Fortunatus, bishop of Poictiers, that Gregory restored the glass of his own cathedral of St. Martin at Tours; and again, in 655, the cloister of Jumiéges was filled with glass by the care of St. Philibert, its founder. The historian, however, makes no allusion to coloured glass, and we must therefore conclude that at that early period the glazing consisted only of thick glass, of a greenish colour, leaded together in ornamental patterns. Several examples of this description are still to be found in France, though of rather later date, and one or two have lately been published by the care of M. Didron.

† See "Engineers' and Architects' Journal," vol. ix.

‡ M. Lusson exhibited a copy of one of the lights in the gallery, containing the stained glass in the Great Exhibition; and some of the original work, probably abstracted when the chapel was used as a record office, is to be seen at Wilton Church, Wilts.

The elaborate medallion windows were generally reserved for the larger churches and cathedrals, where there was a superabundance of light. In the smaller edifices their place was supplied by the *grisaille* windows, or, as they are sometimes called, *entrelacs*. These are not unlike the contemporary pattern-windows of our own country; the principal difference being that the leading lines are straight and interlacing with one another, while in the English examples they are generally in curves. St. Urbain of Troyes, and several of the cathedrals, contain specimens of this work.

The figure and canopy windows seem to have made their appearance in France rather earlier than in England; in these the donor and his trade, if he had one, were frequently introduced below the principal figure, the pedestal being represented hollow, and peopled with small figures. Much more shading was used than in the preceding periods, and there is a falling off in the drawing. Sometimes, however, the effect of a grisaille window was obtained by making both the canopy and figure in white glass, a little colour being used in the background only. A specimen of this treatment, the gift of Guillaume de Cantiers, remains in the Cathedral of Evereux. In the fourteenth century, the window divided into a number of small compositions superseded the old medallion arrangement, and was similarly employed in the lower parts of the church; the subjects are piled one upon another, with occasionally a very flat canopy, or narrow line of white, between them for the purpose of separation.

The fifteenth century presents us with little change in the general arrangement of the figures and subjects; the features are feebly and indistinctly made out, and the figures are influenced by the prevailing style of drawing. The glass, although producing a pleasing effect, is much thinner, especially the blue, than that of the thirteenth century. An immense number of windows were executed during this epoch, and specimens are to be found, more or less perfect, in almost every large church in France. St. Ouen, at Rouen, has some fine figures, upon a white quarry ground, in the clerestory windows; and good examples of the glass of this period will be found in St. Gervais at Paris, and Nôtre Dame at Chalons-sur-Marne.

Many improvements were introduced into the art at the epoch of the Renaissance. The first masters were employed to make cartoons; enamel was used to give depth to the colours without losing the richness, and much more white was employed. Many of the windows are very little more than grisailles, as those designed by Jean Cousin for the Sainte Chapelle at Vincennes: one of these, representing the angel sounding the fourth trumpet, is admirable both in composition and drawing. The Cathedral of Auch also contains some exceedingly fine examples of the work of Arneaud Demole; Beauvais also possesses a great deal of the glass of this period, especially a very fine Jesse window, the work of Enguerand le Prince; the heads are grand, and the poses of the figures call to mind the works of Albert Durer.

The grisailles which ornamented the windows in the houses of the nobility, and even of the bourgeoisie,* although small, were executed with an admirable delicacy, and in drawing and grouping leave little to be desired.

Towards the end of the sixteenth century the art began to decline, the numerous glass-painters found themselves without employment, and the celebrated Bernard de Palissy, who had been brought up to the trade, left it to engage in another presenting greater difficulties, but which eventually secured him the highest reputation. To him, however, we are indebted for the charming grisailles representing the story of Cupid and Psyche, from the designs of Raphael, which formerly decorated the Château of Ecouen, the residence of his great patron, the Constable Montmorency. Le Vieil, the last of the glass-painters, describes how he was compelled by the chapter of Nôtre Dame de Paris to dismount the few remaining figures from the clerestory, under the pretence that they obstructed the light. After the Revolution, Napoleon wished to restore the windows of St Denis, and applied to the manufactory of Sèvres; the productions of which, however, were not successful, and it was reserved for MM. Gerente, Lusson, Lafaye, and others, to accomplish what the establishment of Sèvres had in vain attempted—the perfect restoration of the art of working in coloured glass. The space will not permit us to allude to the admirable works of M. Lusson in the Sainte Chapelle, at Paris, for which M. Gerente also made some excellent studies, but was unfortunately prevented by his premature death from carrying them out.

* These roundells in grisaille appear originally to have been a German invention.

H. PIDGEON, DEL.

M. DIGBY WYATT, DIRECT.

F. BEDFORD, LITH.

PENDANT LAMP IN SEVRES PORCELAIN

LONDON, PRINTED AND PUBLISHED NOVR 15TH 1852 BY DAY & SON, LITHOGRAPHERS TO THE QUEEN

PLATE CXV.

PENDANT LAMP IN SÈVRES PORCELAIN.

The publication of the present plate affords us an occasion for returning to the subject of this royal manufactory, of the present admirably conducted state of which our representation furnishes such satisfactory evidence. We have already had occasion to allude to the very valuable services rendered to the advancement both of the theory, practice, and history, of the ceramic arts by M. Brongniart, who for so many years occupied the distinguished post of director of the institution in question, and we have now, in noticing the present practice of the workshops, only to observe that for many of the most ingenious processes, and for the most subtle formulæ of compounds, France is indebted to the labour and research of that accomplished and indefatigable student.

The royal manufactory has been in many ways fortunate in those who have been officially connected with it; since what the learning of Dr. Klemm has accomplished as an historian for the Dresden Museum of Porcelain, the energy of M. Riocreux has effected for that of Sèvres, and the chemical improvements introduced by M. Brongniart have been admirably carried out and perfected by the late talented and universally respected director, M. Ebelman, whose loss must long be felt in that establishment.

Having thus acknowledged the sources from whence the details of the majority of the processes now in common use have been derived, we shall proceed to offer a short notice of their nature. We have mentioned in a former notice (Plate XXXI.) that since 1805 the *porcelaine dure* only is manufactured at Sèvres, and all the objects in the Great Exhibition were of that description. The usual proportions of the "slip," or clay, as prepared for the modeller consist of,—

Kaolin (China clay)	48 parts
Sand separated in the process of washing the clay . . .	48 „
Chalk	4 „

The "slip" is brought into a very liquid state in order to ensure the complete mixing of the ingredients; it is therefore necessary afterwards to reduce it to a more solid consistence, which is effected either by heating it, so as to evaporate the water, or by pouring it upon plates of gypsum, which absorb the moisture; or again, by squeezing out the water in presses. All the materials employed in the manufacture of porcelain must be reduced to a state of very fine powder, and it is essential that the particles should be as nearly as possible of the same size. Much difficulty is experienced in separating from the kaolin the fine particles of mica, with which it is mixed in the pits. By mixing the clay with water, and passing the mixture through sieves, much of the mica may be separated; but a considerable portion passes through with the pure kaolin. It is considered that the great excellence of the porcelain of China and Japan is partly owing to the purity of the kaolin there found from such particles of mica. When sufficiently solid, the "slip" is passed through the mill, and is then ready to undergo the various operations of turning, moulding, and casting, by which, either singly or combined, all the objects must be produced. The ornamental parts, as handles, &c., are cast separately, and afterwards attached to the object. The vessels thus formed, after being baked, are termed "biscuit;" and the material in that condition is opaque, porous, and absorbent. A liquid glaze being prepared, of felspar ground very fine, and mixed with a little alkali, the articles in the state of "biscuit" are dipped into it, when the water is absorbed by the body, and the solid materials remain on the surface. Very careful manipulation

is required in the process of dipping the "biscuit," in order to insure uniformity and purity of colour in the glaze. When again dry, the ware is exposed to the intense heat of a second firing in the glazing kiln, from which it should come out of a milky white. In this process, the glaze penetrates and vitrifies the whole mass, which thus unites with the softer matter so completely, that the glaze does not form a mere coating upon the body, but appears like the surface of a stone polished by the lapidary. This homogeneous texture of the substance is essential to prevent its cracking from sudden changes of temperature, but the process is one of much hazard; for if the firing is prolonged beyond the critical moment when the vitrification is effected, and the surface has become bright, the ware will melt.

The articles are not openly exposed to the fire in the kiln, but are placed in cases called "seggars," which, from their importance in the manufacture of porcelain, deserve a brief description. They are made of plastic clay, crushed quartz-sand, and the ground fragments of destroyed "seggars," and are generally in the form of shallow cylinders. Various modifications have been introduced to effect the objects, viz. economy of space, firmness of support, and the regular distribution of heat to the enclosed pieces of porcelain. Owing to the different qualities of the clay, as found in separate localities, the duration of "seggars" varies considerably; at Sèvres they will stand fifteen or twenty firings, while at Berlin they seldom endure more than two or three; and at Meissen more than twenty per cent are lost in the first firing.

It is the practice in all important porcelain manufactories to deduce the best proportions of the ingredients for the "slip" from the analysis of specimens of porcelain of known good quality. For as all the ingredients employed by the potter are of the most permanent nature, the only substance dissipated by the firing process is the water; consequently it is easy to determine by careful analysis the exact materials that have been employed. At Sèvres the standard proportions thus arrived at are:—

Silica, 58 grains; Alumina, 35; Lime, 5; Potash, 2. Total, 100 grains.

To maintain this standard, constant analyses are required of the different substances employed. The mean composition of the best glaze, as given by analysis, is,—

Silica, 73 grains; Alumina, 18; Potash, 9. Total, 100 grains.

This forms, in fact, a true glass, which flows into all the pores of the body.

The colours used in the enamel painting are all composed of metallic oxides, ground up with a "flux," which when fired forms the vitrified glaze. The flux most commonly employed consists of six parts of red lead to four of borax and two of flint.

Most persons are so accustomed to consider the excellence of the productions of the Sèvres manufactory as entirely unrivalled, that they would be surprised to find numerous specimens of English work preserved there in the museum as valuable examples for imitation, both in design and material. Mr. Cooke Taylor, in a report on the productions of this establishment,* says: "On closely examining the collection at Sèvres, it will be found that the best specimens of earthenware, particularly of articles designed for daily use, are English productions; but, however gratifying such a conclusion may be to our national pride, it is counterbalanced by the mortifying reflection that we have to visit France in order to learn the history of one of our own national manufactures." Some of the articles thus alluded to were manufactured, it appears, by the Mintons as early as 1800, for his Majesty George III. In speaking of the comparative state of porcelain manufacture in England and France, Mr. Taylor says: "We are disposed to yield the palm to the French enamelled vases and to the table decorations, as distinguished from table-services; but we must deny the superiority they claim for their dinner and tea-services." And farther on he says: "In France, we think that the ceramic art, if not positively retrograding, at least is stationary, and very barely keeps its ground; in England, there is no art which exhibits more unquestionable signs of progress." Since the date when the above was written, we think there can be no doubt that such progress has actually been made as to more than realise the most sanguine expectations; and it may even, perhaps, be doubted whether the superiority of the Sèvres manufacture, in the size and exquisite colouring of their largest vases, is not in great measure owing to the circumstance that the price at which such articles can be disposed of will not repay the cost of their production, so that they are not likely to be undertaken by individual manufacturers depending solely on their own resources.

* In the "Art-Journal" for 1847.

H. CALDECOTT.

M. DIGBY WYATT, DIREXT.

F. MORAS LITH.

CHINTZ PATTERN BY JAPUY & SON, OF PARIS

LONDON PRINTED AND PUBLISHED NOVR 15TH 1852 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CXVI.

PATTERN OF A CHINTZ,

BY JAPUIS AND SON OF PARIS.

The specimen of French chintz which we now engrave is a favourable example of the taste and propriety of design bestowed by our Continental neighbours upon articles which, in our own country, have long been characterised by an absence of that essential quality. The draperies of printed and glazed cotton known by the name of chintz* have, indeed, too often exhibited the most flagrant and glaring improprieties; as Mr. Owen Jones observes, "with roses in violent contortions over the sinuosities of our furniture, or broken in twain by the folds of our curtains."† Fortunately our Schools of Design are slowly, but surely, diffusing sounder and better principles; and the gentleman whom we have just quoted, amongst other efforts in the cause of art-education, has applied his talents to the production of designs for textile fabrics, such as must tend to supersede the abominations to which we have been hitherto accustomed.‡

We have in former articles pointed out, somewhat in detail, the exquisite muslins of Dacca, as illustrative of the cotton manufacture of the East; and we may avail ourselves of the present opportunity to indicate, though necessarily in the briefest and most general manner, some of the more striking features of that great branch of industry which gives employment to so large a proportion of the labour and capital of the United Kingdom.

It has been observed by Mr. Bazley, the President of the Chamber of Commerce at Manchester,§ that the East India Company were steady importers of cotton manufactures till the close of the eighteenth century. Chintzes, muslins, and calicoes were brought from the East Indies, and that useful fabric known as nankeen was imported from China. About that time, however, the increasing production of manufactured goods in England greatly diminished the profits of importing of such articles. Perhaps the earliest manipulation of cotton in this country may be traced to the simple conversion of the raw produce of Turkey, the Levant, or Italy, into candlewicks.

From the commencement to the middle of the eighteenth century the greatest activity was displayed in the domestic manufacture of cotton. The weavers, however, were entirely dependent upon the rustic spinning-wheel for their supplies of yarn, and were frequently compelled to suspend their operations from that cause. This difficulty led to the introduction of spinning-machines. Wyatt and Paul, in the year 1730, invented a mode of elongating cotton-wool by rollers, in the operation of spinning; but, as Mr. Bazley observes, "the useful and beneficial maturity of the principle was certainly developed by Arkwright, who patented his process in 1767; and having constructed his machine called the water-frame, for spinning with rollers, he applied it most satisfactorily to the production of 'water-twist,' which was used for warps instead of linen yarn. In the same year, Hargreaves completed his very important invention of the 'spinning-jenny,' a machine

* *Chintz* is a word of Hindoo or Persian origin, denoting spotted or stained. The gaily-coloured prints so called, which acquired great popularity in the reign of Queen Anne, were chiefly imported from the East Indies.

† See a design for Chintz by Mr. Owen Jones, in the "Journal of Design," vol. vi.

‡ Lecture on "Colour in the Decorative Arts."

§ Lecture on "Cotton," delivered at the Society of Arts, in the presence of H.R.H. Prince Albert, on the 31st of March, 1852. This admirable discourse has furnished us with the leading facts mentioned in the present article.

admirably adapted to spin the weft yarn requisite for the shoot of the warps spun upon the water-frame. Thus were simultaneously developed two most valuable pieces of machinery, whereby the growing demands of industry could be satisfied. About the same time the cleaning, carding, and preparation of cotton wool derived great advantage from many curious and opportune contrivances." Great and rapid indeed was the progress of mechanical improvements, and most powerful the impetus derived from the developement of the mighty power of steam by Watt and his successors. Crompton, in 1787, invented the 'mule,' which combined the action of the water-frame with that of the spinning-jenny, so as to produce yarn suitable for the manufacture of the finest muslin and lace.

Calico-printing was established in London by Mauvillon, a Frenchman, at the latter end of the seventeenth century, the use of the copperplate being afterwards introduced there by Nixon. In Lancashire the art was not introduced till about a century ago; but through the energy and enterprise of the great local manufacturers, and the successive improvements in machinery, it is now so extensively practised, that one-seventh of all the cotton spun and manufactured is devoted to printed goods. The admirable results and processes of block and cylinder printing we shall take occasion to notice in a future article.

Our limits will not allow us to detail the numerous purposes to which cotton is applied, both spun and woven, singly and in combination with other materials. Even after the spinner and the weaver have used all the fibres they can make available, the waste which remains is applicable to the manufacture of paper, adapted even for letter-press printing. Although machinery would fail to convert the cotton of Dacca into yarn so fine as that produced by the practised skill of the Hindoo spinner, a much finer thread is produced from American cotton in this country. The Indian yarn is never finer than No. 400, but lace has been made at Nottingham from No. 600 yarn; and, as an experiment, a thread bearing the number 2000 has been produced in this country, of which a single grain in weight would extend to the length of 960 yards.

In the first five years of the eighteenth century the average annual consumption of cotton wool in Great Britain was about one million pounds weight, and the number of work-people, of all ages and classes, employed in the manufacture did not exceed 25,000. During the year 1851 the consumption of cotton was no less than 760,000,000 pounds; the actual number of workers employed being upwards of 1,250,000, amounting with the families dependent on them to not fewer than 3,500,000, or nearly one-eighth of the whole population of the United Kingdom. The parties engaged in the manufacture contribute more than 12,000,000*l.* sterling per annum to the taxes, or one-fourth part of the whole national revenue. The exports of cotton goods in 1851 amounted in value to upwards of 30,000,000*l.*

Marvellous as the progressive increase of the English cotton manufacture has hitherto been, it is not less extraordinary to note the indications of its further advance. Mr. Leonard Horner, the inspector of factories, reports that in 1851 no less than seventy-three new cotton-mills, with an aggregate of 2064 horse power, were built or set to work in the Manchester district. In old establishments additional power to the extent of 1477 horses was introduced during the same period, together furnishing employment for 14,000 fresh hands. In the present year, the extension of the trade has been even more remarkable.

These significant facts give rise to the important question, From whence is the necessary supply of raw material to be obtained? In 1851 we imported from America 1,393,700 bags of cotton; the total imports, foreign and colonial, being only 1,727,400 bags. But we learn that the supplies, which Mr. Bazley characterises in the strongest terms as "limited and confined," are now falling into the hands of speculators; and the anxiety which that gentleman expressed in March last with regard to the future supply of cotton has been again recently urged upon the attention of the public by the metropolitan press. Unquestionably the best remedy for the anticipated evil would be the increased cultivation of cotton in the British colonies; and as the first small imports from America date only from the year 1787, though the crop now yields nearly 30,000,000*l.* sterling to its cultivators, it may be fairly contended that similar results might be obtained, by the adoption of judicious means, in the East Indies, the West Indies, Australia, and Port Natal. In furtherance of this important argument, the gentleman, to whose remarks we have been so much indebted, adds, that a tract of country of no greater extent than the county of York, would, if of suitable soil and in a genial climate, produce more cotton than is required for the present consumption of Great Britain; and, moreover, that specimens of as good and fine cotton, as were probably ever grown in any country, have actually been produced within the walls of a Manchester spinning-factory.

VECHTE, DEL

W. DICKY WYATT, DIREXT

J. A. VINTER, LITH.

PORTION OF A SHIELD IN SILVER BY VECHTE FOR HUNT & ROSKELL

LONDON PRINTED AND PUBLISHED DEC.R 1ST 1862 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CXVII.

PORTION OF A SHIELD EXECUTED IN SILVER BY VECHTE,

FOR HUNT AND ROSKELL OF LONDON.

In the earliest ages in every country, so long as hand-to-hand combat existed as the customary form of warfare, it was the aim of even the most uncivilised warrior to convert that, which constituted his defence, into an object calculated to intimidate his antagonist. Hence it is that the shields of the South Sea Islanders, of the Tartars, of the Norsemen, of the Goths, of the earliest Greeks, of the Saxons, and even of many of the knights of the Middle Ages, and of the Chinese of recent times, were covered with representations of hideous divinities thirsting for blood, or fearful conflicts in which the past victories and cruelties of the chief or his tribe were set forth with every conceivable detail of horror. The great prototype of such a form of enrichment, and the propriety of its connexion with the heroic state, may be found in the fable of the shield of Perseus.

In all those cases, in which men were associated in some common cause, the number and strength of the army was found to act quite sufficiently potently upon the imagination of the adversaries, and it became unnecessary to reproduce the frightful images which gave each individual chieftain so terrible an aspect. The decorations of the buckler in a secondary state of civilisation were therefore for the most part simply distinctive, for purposes of recognition; or devotional, as indicating the faith of the bearer. To the former class we are indebted for the introduction of heraldry, and to the latter for works such as those described by Homer and Virgil, and for such as were frequently employed in the Crusades and other religious wars of the Middle Ages. Of all the objects, upon which the toreutic skill of the ancients was exercised, there were none regarded as of higher importance than the weapons of the Argive captains. In war, the buckler of beaten bronze variously coloured, enriched with gold and silver ornaments, and covered with representations of gods and demigods, served at once to protect and to designate the leaders—in peace, suspended over the couch, it served as an ornament, of which its proprietor was justly proud. The elaborate descriptions of the shields of Achilles and of Eneas will at once occur to the reader's memory. In mediæval times the shield attested the ruling passions of the knight, and in its legend or device betrayed his greater or less affection for religion, love, or combat. As civilisation and learning advanced, and the age of chivalry passed away, armour in a great degree ceased to be employed for personal defence, and served only for parade and the display of the taste or magnificence of the nobles. It was during the period of the revival of the polite arts, that about the courts of the great Italian princes were congregated many skilful artists whose whole life and energies were devoted to the elaboration of magnificent suits of armour destined to be worn only upon the highest and most stately occasions. Of all such objects, those upon which the greatest amount of labour was invariably bestowed, were the casque and the shield; and in the Ambras collection at Vienna, and in that of the Zwinger at Dresden, such a series of specimens have been collected, as attest most fully the perfection to which the art of metal-working was brought in their execution. The example which had been set by the Gonzagas, Farneses, Medicis, Dorias, and other patrons of the arts in Italy, of converting into objects of beauty what had once served only for absolute use, was speedily followed in other countries;

and the armourers of Spain and of Augsburgh very shortly rivalled, though they never equalled, the great Negroli and other art-workmen of Milan and Ferrara. It is difficult to find any large collection of sketches of the old masters, which does not exhibit at least two or three drawings of such objects, attributed to men such as Giulio Romano, Polidoro da Caravaggio, Primaticcio, Franco Bolognese, or Pellegrino Tibaldi. Many of the magnificent shields of repoussé work, covered with the richest damascening, such as that in the possession of her Majesty the Queen, have been assigned to Benvenuto Cellini, but apparently on insufficient grounds; since it is not only probable that, had he executed such works, he would have made mention of them in his writings; but there is no reason for doubting that the workmen of Milan and Augsburgh were equal to the production of any amount of exquisite manipulation, the designs being made for them, not only by artists of the highest eminence, but by others such as the "Petits Maîtres," whose attention was almost exclusively given to the composition of the art-manufactures of the period, on the acquisition of which the rich families of Nuremburg, Augsburgh, Cologne, Italy, France, Saxony, and the Low Countries, lavished enormous sums of money.

During the last century the bucklers of the Renaissance served as models for salvers, and many a design, which now figures in the shape of a piece of old plate on the sideboard, once served to decorate the shield which was borne upon grand occasions on the arm of some prince or elector.

In modern times many revivals of the old decorated shields have been attempted. Those, in which the antique has served as the basis of the composition, have engaged the attention of several of the most eminent artists; and the highest excellence has been attained by no less a man than the immortal Flaxman, in his well-known shield of Achilles. Had the unfortunate sculptor Pitts lived to complete his composition of the buckler of Eneas, from the description of Virgil, he would unquestionably have produced one of the finest works in metal ever executed. Schwanthaler, the great Bavarian, bestowed much thought and study on a shield, representing the story of Hercules, the finest copy of which is now in the possession of his grace the Duke of Devonshire; and Professor Widnmann of Munich, adopting the general lines of Schwanthaler's composition, has most successfully wrought out the whole into an illustration of the Olympian theogony.

In revivals, however, of the finest bucklers of the Renaissance period, no man has ever laboured more successfully than M. Vechte, by whom the object engraved was executed. So profoundly has that gentleman studied, not only the general principles of composition, but the very trick and method of the processes of workmanship as well, that more than one European collection of notoriety exhibits, as genuine specimens of antiquity, objects produced by his dexterous manipulation

The theme of M. Vechte's composition is essentially English, and may be regarded as an apotheosis of Milton, Shakespeare, and Newton. In the centre of the shield its umbo will be formed by a beautiful figure of the genius of the Arts and Sciences modelled in the round. In the spandrils between the principal subjects are represented allegorical figures of Astronomy, Poetry, and the Drama; and in the outer margin incidents relating to the subjects of the principal compositions.

In the one compartment, Milton is represented dictating to his daughter his poem of "Paradise Lost," inspired by the genius of Religion and Poetry, with the emblems of the torch and the lyre. Crouching behind a shield, is Satan,

> "* * * Horror and doubt distract
> His troubled thoughts, and from the bottom stir
> The hell within him."

Beneath the forbidden tree is shown the disobedience of our first parents, when,

> "* * * From thebough she gave him of
> That fair enticing fruit wit liberal hand."

The "subtle serpent" is coiled round the stem, and the atist has introduced another genius of evil amongst the branches. On the border is represented the battle between Abdiel and Satan; the angel Raphael cautioning our first parents against their enemy; and their expulsion from Eden. In another compartment Shakespeare is represented seated in a vessel of immortaliy floating on the river of life, attended by Apollo and Minerva, who points out to him the vices of humanity. On the side of the vessel are illustrated the seven ages of man. The subjects on the iron border are from Hamlet. In the third compartment, Newton is shown reclining on a globe, accompanied by figures of Time, Truth, and Wisdom, who appear to rebuke two other crouching figures, typical of Ignorance and Superstition. On the right is a figure of Earth instructing her children, who are identified with Europe, Asia, Africa, and America. In slight relief above, is shown the system of planetary attraction which he propounded.

DRAWN BY [illegible]

M DIGBY WYATT DIREXT

F BEDFORD LITH

CHINESE VASES IN JADE STONE

LONDON: DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CXVIII.

JADE-STONE VASES FROM CHINA.

Few objects in the Chinese department of the Great Exhibition were more interesting than the vases we now engrave, alike from the beauty, singularity, and extraordinary value of the material, and the graceful forms and elegant ornamentation to which it was made subservient.

The sculptured tortoise in jade-stone in the British Museum must be a familiar object to all our readers, but so little is generally known of the properties and uses of this rare and precious material, that we are induced to hope the following information may not be unacceptable. In presenting it to our readers, we are happy to acknowledge the courtesy of Mr. J. W. Dudgeon, of Pall Mall, who has kindly aided us by scientific researches, and by the results of his personal observation in China.

Dana, in his "System of Mineralogy," classes jade among anhydrous silicates of lime and magnesia, and describes its component parts as being—silica, about one-half; lime and magnesia together, about one-third; alumina, one-tenth; with a small quantity of oxide of iron. In colour it varies from a dark green, through all the lighter shades, to a bluish white and grey; the rarest specimens being of a translucent milk-white, resembling in appearance the common opal of the East. The author of the article "Mineralogy," in the "Encyclopædia Britannica," divides this substance into common jade-stone and a sub-species called axe or hatchet-stone. He states that it may be melted by the blowpipe into a kind of semi-transparent white glass. The prominent qualities of jade are a degree of hardness equal to that of quartz, together with extreme toughness or cohesion of parts. It is found in nodules, embedded in talcose or slate, and granular limestone; and though most frequently met with in Oriental countries, it is, in various forms, widely diffused over the globe. Saussure discovered it, in the form of water-worn pebbles, on the banks of the Lake of Geneva; and similar stones are found on the shores of Iona, one of the Hebrides. Besides the East Indies, China, and Turkey, jade is met with on the Alps and in Piedmont. On Rhode Island, in the United States, it is bedded in limestone; but this variety differs from the Oriental species, in containing a large percentage of water, and is denominated Bowenite, after the name of its discoverer

Jade-stone was applied, in very early ages, and by rude and barbarous nations, to purposes for which metals are now used, and for which its extreme hardness peculiarly fitted it. Axes and other cutting instruments being formed out of it, it acquired the popular name of axe or hatchet-stone. Even in modern times it is employed for warlike and domestic implements by the natives of the South Sea Islands, and especially New Zealand, where it is called *Punamoo*, from the name of the middle island, whence it is obtained.

Another singular purpose to which jade-stone was formerly applied was for the cure of nephritic disorders; but the progress of science has dispelled the belief in its medicinal properties, which may well be supposed to have been purely imaginary, when we state that the mode of its application was by wearing a small plate of it suspended round the neck. This obsolete use of jade-stone, however, has led to the name of *nephrite*, by which it is generally known to mineralogists. Dr. Woodward, who wrote many valuable medical works about the end of the seventeenth century, observes that "the nephritick stone is commonly of a uniform dusky green, but some samples I have seen of it are variegated with white, black, and sometimes yellow."

The employment of jade for ornamental and artistic purposes is, however, that with which we have principally to deal; and the beauty of the material naturally led to such an application of it at a very early

period. It is cut by the Hindoos into small images; and by them, as well as by the Turks, it is often used for the handles of swords and knives. In the north-eastern parts of China the finest specimens, and the greatest variety of jade—which is called by the Chinese *yu*—are produced. We are informed by Mr. Dudgeon, that "its manufacture into ornamental objects is principally carried on in the northern and interior parts of the empire; and so highly is it esteemed among the natives, as frequently to occupy the place of jewellery in ornaments for the person and dress. The finest specimens are white; and a piece of that description, about the size of a pigeon's egg, is worth in China about *one thousand dollars*. It takes but an imperfect polish, rarely exceeding an oily lustre, except in the best specimens. The larger masses are cut into vases, bowls, or cups, some of extreme delicacy and beauty of design, the artist often exhibiting a wonderful talent in taking advantage of any peculiarities in the form of the rough mass, so as to produce a corresponding novelty of effect; and often converting a defect in the material into an elegance." The same gentleman adds, that the large vase in the engraving, which is the property of his brother, Patrick Dudgeon, Esq.,* is merely ornamental in its purpose, and presents a not uncommon form of jade ornaments. It cost in China 12*l*. In reference to the value of such vessels, he states that "rice-bowls are sometimes made of jade, and used; but certainly not more frequently than gold dishes are in England."

In Mr. Dunn's collection there were specimens of a curious object called a *joo-ee*, anciently made of this material in China. Davis describes this as a curved ornament, less bent than the letter S, and about eighteen inches long; adding, that the lotus being generally carved on its superior end, indicates that it had a religious origin. Dr. Morrison says that the *joo-ee*, which was frequently of great value, was carried in the hand by ancient governors or princes of state, as a symbol of authority; being given to them by the Emperor as the badge or seal of their appointment. These sceptres (as they may be termed) are now exchanged as costly marks of friendship and good-will; the words "joo-ce" signifying, "as you wish," or "everything according to your wish." In the same collection were "jade-stone rings, which are put on the arms of females when young, and never taken off;" and also "broad rings of *yu*, worn on the thumb by archers, to prevent the bow chafing." The author of the catalogue (Mr. W. B. Langdon, Curator) states, that "the value of these rings depends upon their colour. As much as 500 dollars has been given by a Chinese for one of a peculiar shade." Some curious teapots, mentioned in the same work, exhibited a combination of jade, porcelain, and white copper; the handles and spouts being of the former material, and the bodies of porcelain coated with the metal.

The British Museum contains two fine specimens of this material; one cut into an oval vase, and the other into an oblong dish and cover: together with other Chinese specimens. Besides the tortoise already referred to (which was "found on the banks of the Jumna near Allahabad, brought to England by Lt.-Gen. Kyd, and presented to the Museum by Thos. Wilkinson, Esq.") the national collection contains a jade-stone cup, "the gift of the King of Ava to Lt.-Col. Burney, when British Resident at that court;" a "jade mouthpiece of a pipe from Egypt;" and other curious specimens.

We cannot close the present notice without adverting briefly to the process of cutting this singularly hard substance. Mr. Dudgeon observes that "the Chinese possess a well-deserved fame for their excellence in glyptics; more especially in hard materials, such as jade and mother-of-pearl, upon which a considerable amount of labour must necessarily be expended. The national character for imitation and patient perseverance has, doubtless, much to do with the application of inexpensive labour to this toilsome work; but they are possessed of powerful corundite, which at one time had a European fame, before it was so well known as it is at present. This cutting material occurs in crystals, mostly enclosed in granite, mica slate, dolomite, or magnetic iron; and in Europe is found in Piedmont and Sweden.† It belongs to the sapphire species, and when obtained fine and pure in colour, is cut as a jewel. It is reduced to a powder before being used for cutting and polishing." Professor Ansted contributed to the Great Exhibition "two cut blocks and four small cylinders of hard jade; and one specimen of coarse granite, the powdered fragments of which are used in cutting that stone." He adds, in a note to the "Official Illustrated Catalogue," that "these specimens are worth notice, because, although numerous finished works in jade have been frequently sent to England, the raw material has not often been seen. It is fine grained, and must have been very difficult to work."

* Erroneously stated in the Catalogue to be exhibited by W. Walkinshaw, Esq. of Hong Kong.

† "Treatise on Gems," by Feuchtwanger of New York.

PLATE CXIX.

FIGURED SILK.

BY MATHEVON AND BUVARD, LYONS.

Of the rich and beautiful productions, for which the looms of Lyons have so long been celebrated, the specimen which we have chosen for illustration was one of the most elegant exhibited by the firm of Mathevon and Buvard, who have long enjoyed a high reputation for the magnificence of their brocades and furniture stuffs; and we find their names amongst the class receiving high rewards on the occasions of the National Expositions since 1823, when they received their first silver medal. They obtained the same distinction at the next Exposition in 1827; and the jury in 1834 awarded to them the gold medal, of which they also received honourable *rappels* in 1839 and 1844. The reputation which these manufacturers have thus so long enjoyed was well sustained by them in the Great Exhibition of 1851, on which occasion they obtained a prize medal "for some splendid specimens of rich silks for churches and ecclesiastical vestments, as well as for furniture in lampas, damask, brocatelles, and reps, worked in bouquets of flowers, in gold, silver, and silk, the cost of some being above 300 francs per mètre, and the mere labour of which costs from sixty to seventy francs per métre," &c.

The exact period at which silk-weaving was first practised at Lyons appears somewhat obscure; but about 1480, Louis XI. attracted some Italian workmen to France and established them at Tours; and it was not till about forty years later that the manufacture of silk was introduced at Lyons under the protection of Francis I., who, having become the master of the Duchy of Milau, induced some of the Lombard silk-weavers to establish themselves in France. In order to relieve France from her dependence upon Italy, both for the raw material as well as for the manufactured silk stuffs, Henri IV. encouraged the home production by granting patents of nobility to such of the silk-manufacturers as had been engaged more than twelve years in this branch of industry. In 1540 Lyons obtained the privilege of being an exclusive dépôt for silk, and this monopoly was confirmed by various royal ordinances down to 1717.

According to M. Arles Dufour, one of the highest authorities on the subject of the silk-manufacture in France, the number of looms at Lyons and in the neighbourhood, rose during the half century preceding the Revocation of the Edict of Nantes in 1686, to the number of about 12,000, a vast amount of manufacturing riches for that period; but that unhappy measure dispersed the weavers to other countries and ruined the trade of Lyons, so that in 1699 the number of looms had fallen below 4000. By the middle of the next century the trade at Lyons had so far recovered itself, that, according to M. Rolland de la Platière, the number of looms at work averaged about 12,000 between the years 1750 and 1786. In the two subsequent years the city reached the highest pitch of her manufacturing prosperity previous to the Revolution, and she numbered then at least 18,000 looms. This number was again greatly reduced in consequence of the public agitations of the period, in which the citizens of Lyons took an active part; and at last the siege of the city by the army of the Convention, when 30,000 of the inhabitants are said to have perished, again all but annihilated the trade; so that we find the number of looms employed between 1795 and 1800, varying from 2500 to 3500 only.

It was during these troubled years of the Revolution that Jacquard was labouring at the improvement of the silk-loom, which has rendered his name so famous. This truly mechanical genius was the son of a simple

weaver at Lyons, and was born in 1752. He appears to have early exhibited a strong taste for mechanics; but he was not encouraged in this, as he was apprenticed first to a bookbinder, and afterwards to a type-founder. It was only when, on the death of his parents, he became possessed of some little property, that he took up his father's trade of silk-weaving; and having purchased and set up several looms, started as a *chef d'atelier*. Being, however, a man of contemplative rather than of business habits, he was not successful. Jacquard has not left us any record of this part of his life; but it would appear that his attention was early drawn to the pattern weaving-loom with a view to effecting, by mechanical means, the work which was done by the weaver's assistant in moving what is called the *harness*, so as to produce the pattern required. After labouring at this idea for some years under the most disadvantageous circumstances, we find that in 1801 he had so far accomplished his purpose, that he took out a patent for his invention, which he called the *tireuse des lacs;* and in the following year, having put up one of his new looms, he was visited in the poor lodging, which he occupied in Rue de la Pêchererie, by Carnot, the Minister of the Interior, and the members of the *Consulta*, which was then assembled at Lyons. The merits and importance of his invention were, however, but very slowly recognised, although it was exhibited at the National Exposition in 1801, on which occasion the inventor was only rewarded with a bronze medal, and he is spoken of in the Report of the Jury as "the inventor of a mechanical contrivance, which, in the weaving of figured silk, performs the part of the workman called the *draw-boy* (*tireur des lacs*)." Jacquard was sent to Paris, where he was engaged at the Conservatoire des Arts et Métiers, with various pieces of machinery; and particularly in bringing into working order that invented by Vaucanson some time before to effect the same object as his own admirable contrivance; it was, however, too complicated and costly for practical use.

In 1804 Jacquard returned to Lyons, where he was engaged in endeavouring to introduce his looms; in this he was much obstructed by the determined opposition of the working weavers, who even made attempts against his life. In 1806 an order of the then imperial government authorised the municipality of Lyons to purchase of Jacquard the right of his patent, for which he received an annuity of 3000 francs. After this the number of Jacquard-looms rapidly increased, so that we find them amounting to 18,000 in the year 1812. In 1819 he again brought forward his loom at the National Exposition; and on this occasion the jury, more alive to the importance of the invention, awarded to him the gold medal. Notwithstanding numerous brilliant offers of employment in other countries, Jacquard remained in his native city, where he died on the 7th of August, 1834.

The improvements introduced into silk-weaving by Jacquard, as they were confined to Lyons, had a great effect in increasing the trade of that place; and we find that after the peace in 1815, the number of looms employed soon reached the number of 20,000. It must be understood, however, that this includes those at work in the neighbouring country as well as those in the city itself. From the Reports of the juries of the Expositions in 1834 and subsequent years, we learn that between 1815 and 1830 the number of *métiers* worked at Lyons rose from 15,000 to 27,000; and in 1839 it was calculated that there were 31,000 in the town itself, besides 9000 in the country. The number of looms now working either in, round, or for Lyons, is estimated at nearly 50,000.

The invention of Jacquard effected more than a mechanical improvement; for owing to the height of the card or figure-loom, it could not be worked in the low rooms, which, up to the time of the great invention, the weavers usually occupied. The Jacquards are generally worked in *ateliers*, where the *chef d'atelier*, or middleman, sets up several looms, and engages journeymen, who are termed *compagnons*. The *chef d'atelier* obtains the work from the manufacturers, and it is his duty to arrange the warp and the cards for producing the design; he also undertakes the reeling and winding of the silk. To arrange a Jacquard for a complicated pattern, takes sometimes as much as six or seven days, during which time the *compagnon* is necessarily idle; but as the price paid for the work rises very considerably with the intricacy of the pattern, the weaver does not object to this delay. The price paid by the manufacturer is shared equally between the *chef d'atelier* and his *compagnons*, the former, out of his share, providing the workshop, looms, and accessory labour.

It is remarkable that with all her facilities for breeding the worms, France is obliged to draw a very considerable quantity (about fifty-seven millions of francs' worth) of the raw silk from Italy, 145 millions of francs' worth being produced upon her own soil.*

* The "Morning Chronicle" of May 1, 1851, contains an interesting account of the present state of the silk-trade at Lyons, and to this we are indebted for some of our information.

PLATE CXX.

BLOCK-PRINTED TABLE-COVER,

BY D. EVANS AND CO. OF LONDON.

In our notice of Plate XCI. we gave a brief sketch of the history of the woollen manufacture in England, describing in general terms its most characteristic processes, and particularly adverting to the chemical principles involved in colour-printing, and the employment of dyes, mordants, discharges, and resists. We will now endeavour to convey to our readers some idea of the ingenuity with which the operation of printing both woollen and cotton goods is conducted.

Four different modes of printing woven fabrics are practised: firstly, by wooden blocks worked by hand; secondly, by larger blocks set in a frame and worked by machines, one of which is called, from the name of its inventor, M. Perrot of Rouen,—the Perrotine; thirdly, by copper-plates (a method now almost obsolete); and lastly, by engraved copper cylinders, mounted in an elaborate and beautiful machine, and capable of printing a pattern of several colours simultaneously.

The hand-block is the simplest, as it was the earliest, of these methods. The design being drawn on paper is transferred to a block of sycamore wood, fixed upon a base of deal, and cut in relief, as in ordinary wood-engraving. Small slips of copper are substituted for the wooden lines, where they would be subjected to much wear; and pieces of felt are introduced between the copper fillets, where broad patches of colour are to be produced. Each of these blocks will print only one colour, and two or more are therefore requisite for every pattern. The cloth being wound on rollers, a portion of it is spread upon a table before the printer, who is assisted by a boy or girl to spread the colour on a prepared elastic surface. The workman, holding his block by a handle on the back, colours its surface by pressing it upon the pigment or dye; he then, with the blow of a mallet, impresses the coloured pattern from the block upon the cloth; and when the whole of the fabric has been thus printed in one colour, it receives a second portion of the pattern from another block in the same manner. This operation requires considerable manual dexterity, and occupies much time; for as the blocks measure only 9 inches by 5 inches, it requires 672 applications of each block to print a piece of cloth 28 yards long by 30 inches broad; or 2016 separate printings for a piece of three colours.

About the year 1785, woven goods were first printed from engraved copper plates, the design being in intaglio instead of in relief, on hollow rollers or cylinders; care being taken to adapt one or more complete repetitions of the pattern to the exact circumference of the cylinder. By this mode, as in block-printing, one colour only is produced from each cylinder. The labour of engraving these copper cylinders, which are from 30 to 40 inches long by 5 inches in diameter, was subsequently obviated by the application of Mr. Perkins's principle of multiplying steel plates. This beautiful invention was introduced at Manchester by Mr. Lockett about the year 1808, and the process may be described as follows:—A small cylinder of soft steel, about three inches long by one inch in diameter, is first engraved with the desired pattern. This cylinder, which is called the *die*, is then hardened, and by means of powerful pressure is made to transfer the device to a soft steel cylinder of the same size, on which it of course appears in relief. The latter, which is called the *mill*, is then hardened in its turn, and becomes the means of transferring several repe-

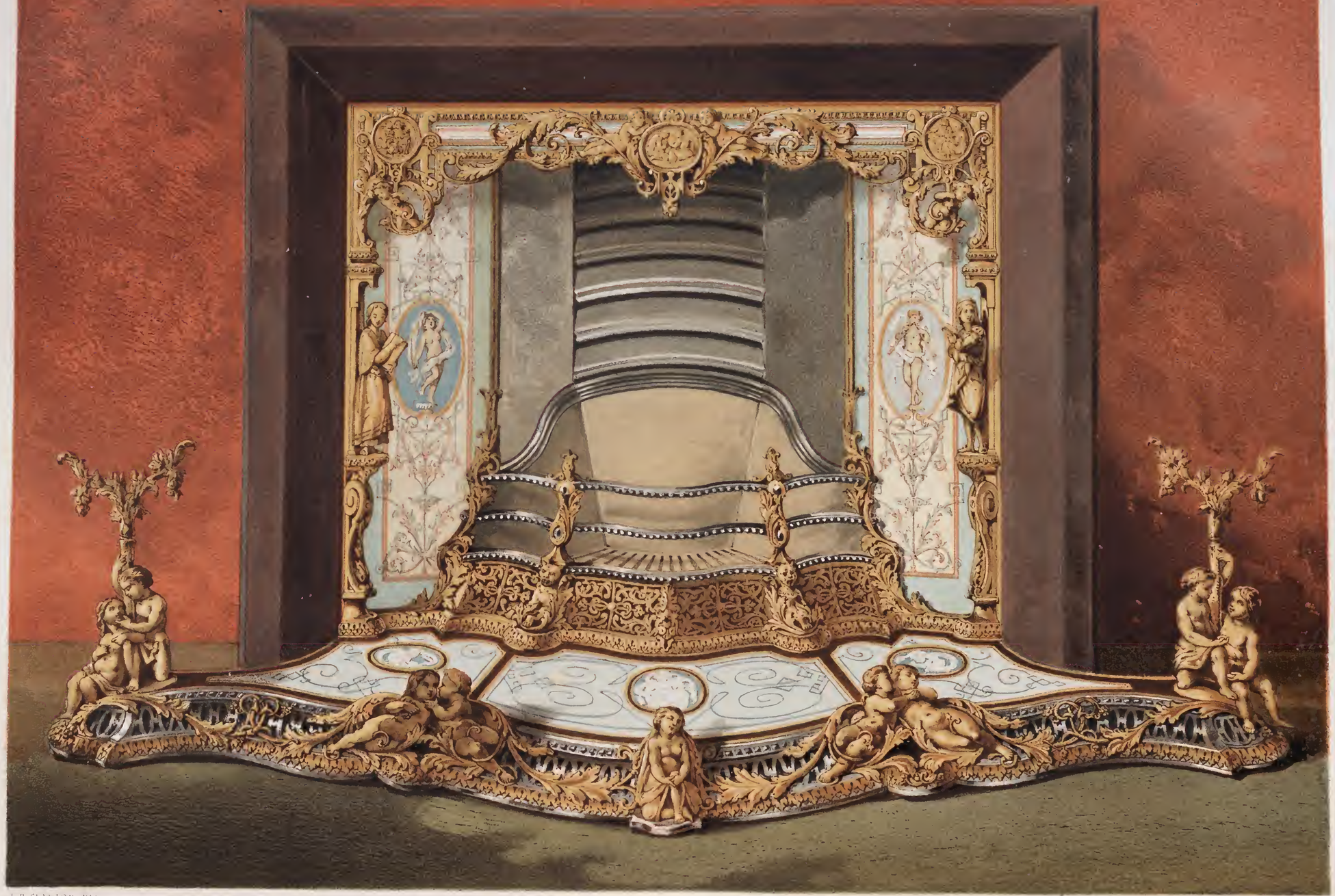
titions of the pattern, in intaglio and ready for printing from, to the entire surfaee of the longer and larger copper cylinder, which it was before necessary to engrave entirely by hand.*

In the improved block-printing machine called the Perrotine, three wooden bloeks are brought to bear upon the faces of an iron roller or beam in the form of a prism, around whieh the cloth is wound. The necessary pressure of eaeh bloek is regulated by springs, and it is eharged with the colouring matter from a prepared elastic surface, which is eoated by means of a brush, moved at regular intervals by the maehinery. By this contrivance, and with three children to superintend the eolouring materials, one man can execute as much work as was performed in an equal time by twenty men and twenty ehildren with the hand-blocks. Another improved method of block-printing is also praetised, somewhat resembling the ordinary type press in its mode of operation, and admitting of the simultaneous use of several colours. In this proeess a set of bloeks (or stereotype easts), in number equal to the width of the pieee of cloth, are so arranged as to receive and print one eolour. Adjoining them is another set, prepared for printing a second colour transversely across the fabrie; and a third, fourth, and fifth set of bloeks may be added; the whole being securely fixed, with their engraved surfaees downwards, in a frame, which reeeives a vertical motion from a lever, as in type-printing. An ingenious method of colouring the blocks, so arranged in stripes, is adopted. As many troughs as there are rows of blocks are filled with the different eolours, and ranged in the proper order. From these a boy spreads with a brush upon a flat felt cushion a corresponding number of differently coloured stripes, in such a manner as to keep them perfectly free from one another. The cushion thus coloured is moved on small wheels under the blocks, whieh in deseending upon it are charged with their respeetive colours, and are then made to print them upon the cloth. This is then moved onwards to the extent of the length of one row of blocks; the eolouring of the bloeks is repeated; and a second printing, by means of the pressman's lever, produees a combination of two colours on the cloth. Another repetition of the process, the cloth being moved forward at the same time, combines a third with the two preeeding colours; and the remaining tints are added in the same way. Great care is necessary in the adjustment and working of this maehine, but the beautiful simplicity of its aetion when properly regulated is very remarkable.

The elaborate eylinder-machines now employed for calieo-printing are generally worked by steam-power, and have been brought to such perfection that five or six eolours are commonly printed by them simultaneously, at the extraordinary speed of nearly a mile in length within an hour; and there is no doubt that as many as eight colours will very soon be printed at once. The eylinders are placed horizontally, so that the lower portion of each dips into a trough containing a colour, mordant, diseharger, or resist, as may be successively required; and with one of these, in its rapid revolution, the eylinder beeomes completely coated. An instrument resembling a long knife or thin rule, teehnically called "the doetor," is adjusted, so that its edge presses obliquely on the eylinder, with such precision as to remove all the colour from the surfaee, but to leave it in the depressed or engraved lines. The pieees of cloth to be printed are temporarily stitehed together in considerable lengths, and one end of the fabric being introduced between the first eylinder and a large central drum, the latter presses it upon the eylinder so that it may imbibe the colour from the engraved pattern. Thus printed with one colour, the cloth is brought in rapid succession into contact with the other eylinders, eaeh supplied from its separate trough, and superficially cleansed by a "doetor," at the same time that it imparts the requisite effeet to the cloth, which, in an ineredibly short spaee of time, leaves the machine completely and accurately printed with a perfect pattern.

The continuous action of the eylinder-machine presents a striking contrast to the mode of printing with blocks by hand, as already described; and the extreme nicety of adjustment necessary to seeure the perfeetion of the pattern may be readily conceived.

* A particular account of Mr. Perkins's invention will be found in Holtzapffel's "Turning and Mechanical Manipulation;" and a paper by Mr. Perkins in the "Transactions of the Society of Arts," vol. xxxviii., fully describes the mode of decarbonising the steel, and the application of machinery to the successive transfers.



F.R. CLAYTON. DEL.

M. DIGBY WYATT, ARCHT.

F. BEDFORD LITH.

THE HOME STOVE AND FENDER BY STUART AND SMITH OF SHEFFIELD.

LONDON. PRINTED AND PUBLISHED DEC.1ST 1862 BY DAY & SON, LITHOGRAPHERS TO THE QUEEN.

PLATE CXXI.

HOME-STOVE AND FENDER,

BY STUART AND SMITH OF SHEFFIELD.

In this and the succeeding Plate we present to our readers a Stove and Fender, exhibited by Messrs. Stuart and Smith of Sheffield; a firm whose exertions in the promotion of good taste and excellence of manufacture in works of this description have obtained for them a celebrity as highly merited as it was justly acknowledged, in the award to them of a Council Medal by the Jurors of the Great Exhibition.

In connexion with this object we propose, first, to offer a few remarks on the antiquity of grates and chimneys in this country; and, secondly, to furnish some practical information on the Sheffield trade, the history of which we have already sketched in our article on Plate XCIX.

Grates and fenders of the form now in common use were not introduced till the beginning of the last century, when the extensive destruction of the native forests, which had for centuries before supplied wood and charcoal for fuel, had rendered all classes in some degree dependent upon the mineral treasures in which our island is so rich. Some writers suppose that coal was worked by the Britons and the Romans, as it was in some parts of England by the Saxons; but the first distinct record of its use is met with in the year 1239, when Henry III. granted a license to the town of Newcastle for digging sea-coal, as it was long afterwards termed. In the latter part of the same century the coal-trade of Newcastle had become famous; but so general and popular was the use of wood, that, in the year 1306, the burning of coal in London was prohibited, from its supposed tendency to corrupt the atmosphere and prejudice the health. In the fourteenth and fifteenth centuries the coal-trade was the subject of many enactments and fiscal regulations. In the palace of Henry VIII. only the apartments of the king, the queen, and the Lady Mary, were supplied with that fuel; and its price in London, in the time of Elizabeth, was 8*s.* per chaldron, necessarily rendering it a rare and costly luxury. It was not till the reign of Charles I. that coal can be said to have been generally used.

Chafing-dishes and braziers, consuming wood or charcoal, were used from the earliest periods in English dwellings, as indeed they were occasionally by the Greeks and Romans; but stoves with concealed fires, although common in other parts of Europe (see Plates LV. and CVI.), have, till of late years, been rare in this country. Mr. T. Hudson Turner* observes, that the Saxons introduced a class of buildings rarely containing more than one room, in the centre of which the fire was kindled on the floor, the smoke escaping by an opening in the roof above, and this continued to be the common mode of warming apartments for many centuries afterwards. It is true that chimneys, or perpendicular flues in the walls of buildings of the twelfth century, still remain, and they are still more frequently met with in succeeding centuries; but that they formed exceptions to the general rule is obvious from the remarks of Leland on the chimneys in Bolton Castle, whereby, he observes, "the smoke of the hearth in the halle was wonder strangelye conveyed."

In the Bayeux Tapestry there are representations of cooking over open fires in a courtyard; but the Norman castles at Rochester, Tunbridge, Newcastle, and Conisborough; the remains of Fountains Abbey;

* "Domestic Architecture of England in the Twelfth and Thirteenth Centuries." 8vo. 1851. Introduction, p. iv.

the King's House, Southampton; the Jews' House, Lincoln, and other edifices of the same period, contain fireplaces and chimneys closely resembling in principle and construction those of the present age. Some of these, as at Conisborough, are ornamented with columns and other decorations. Frequently the only fireplace was in an upper story; that in the Jews' House, Lincoln, is immediately over the entrance-door, above which the chimney is corbelled out. The flues did not always rise to the roof, but were carried through the wall horizontally, or in a sloping direction. In the ordinances or assizes, passed in 1189 and 1212 for the regulation of buildings in London, there is no provision for chimneys in party-walls; whence it may be inferred, as some examples prove, that they were carried up the front or rear walls of the gable.

Mr. Turner shows, that in the thirteenth century many chimneys in the royal residences and elsewhere were made of plaster, for the temporary accommodation of the sovereign and his most distinguished guests. The records of the reign of Henry III. contain frequent orders to raise the chimneys; and in some apartments built for him the mantels of the fireplaces were constructed of marble, carved or painted with designs of the twelve months, or the signs of the zodiac, the wheel of Fortune, the root of Jesse, &c. One mantel in the Tower of London was painted with a representation of Winter. The permanent flues of this period were cylindrical shafts of masonry, rising above the ridge of the roof.

Many examples of plain and ornamented chimneypieces, from the twelfth to the fifteenth century, present a general similarity of form. In Tattershall Castle, Lincolnshire, are two remarkable examples of the latter date, adorned with a number of armorial bearings. All of these, however, being for the consumption of wood, had the well-known appendages termed *and-irons*, or fire-dogs, on which the fuel rested. These and-irons, a variety of which were also used upon the hearth placed in the centre of the hall, were frequently of elaborate design, and were richly ornamented with heraldic ornaments, foliage, scroll-work, and monograms; sometimes with brass or silver work. In Mr. Lower's account of the extinct iron-works of Sussex, will be found descriptions and engravings of many and-irons and ornamented chimney-backs, dating from the fifteenth to the seventeenth century inclusive.

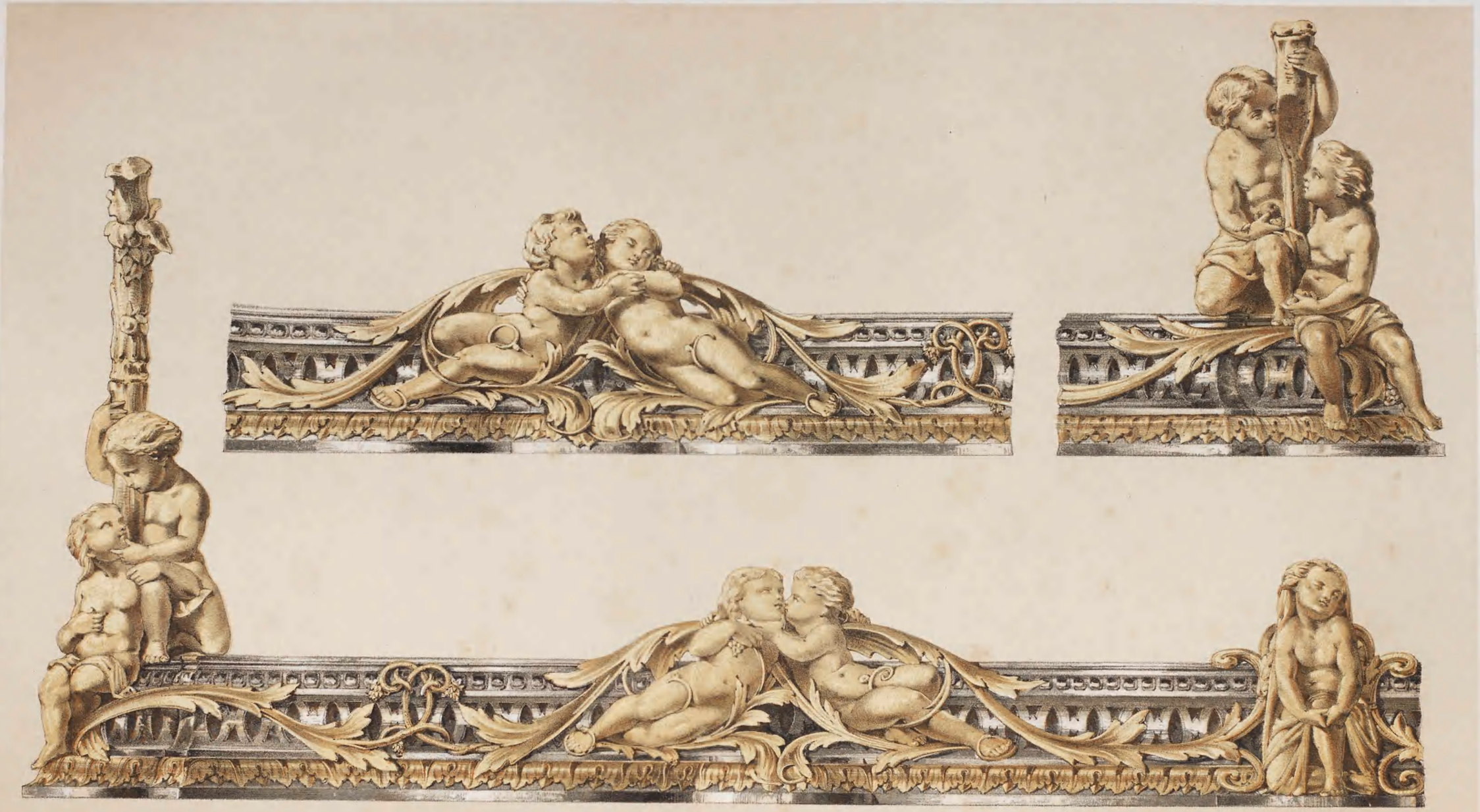
In the reigns of the Tudors the chimney became an important architectural feature, surmounted by tall shafts of brickwork, no less elaborate in design than in execution; and at the same time the chimneypiece assumed much greater consequence in internal decoration. The sumptuous apartments of the reign of Elizabeth present many specimens of ornamented chimneypieces, and the taste for them increased under her successor.* Harrison quaintly informs us, that the old men of his village "did particularly note the multitude of chymneys latelie erected; whereas in their young daies there were not above two or three, if so manie, in most uplandish towns of the realme (the religious houses and manour places of their lords alwaies excepted, and peradventure some great personages), but ech one made his fire against a reredosse in the halle, where he dined and dressed his meate;" and he reproaches the effeminacy of the "tenderlings," who complain of "rhumes and catarrhs," whereas when they had none but reredosses their heads did never ache.† Sir John Haryngton, about the same period, in his "Metamorphosis of Ajax," claims as his own invention the cowl for the cure of smoky chimneys, which their increasing number had rendered necessary.

In the year 1603 the furniture of Hengrave Hall comprised "two payer of andyorones, with heads and foreparts of copper;" "one fier sholve made like a grate to seft the sea cole with;" "one payer of tongues;" together with "one cradell of iron for the chimnye, to borne sea cole with." The poker was originally a fire-fork, adapted both to wood and coal. An iron grate, "caminum ferreum," was in use for cooking from a very early period; and it may not be superfluous to remark that the term "grate," applying to the form of the barred or grated object, was in a similar sense used to designate a basket, a basket-maker being styled a "grate-maker" in 1582. The earliest grates for burning coal were moveable, and made to rest upon the older and-irons. Among the fire-backs engraved by Mr. Lower is one representing Charles II. in the Royal Oak.

As the consumption of coals increased, fixed grates became more frequent in dwelling-houses. Those of the eighteenth century were large, inelegant, and unscientific in construction; and the humbler classes of the community were indebted to Count Rumford for the introduction of a cheap and convenient grate, which long bore his name. It would be impossible within our limits to enumerate the improvements, both in principle and execution, which have been made within the last fifty years; nor will it be necessary to those who remember the admirable variety of grates, stoves, ovens, and ranges, in the Great Exhibition of 1851.

* Iachimo's description of the chimneypiece and and-irons in the chamber of Imogen is familiar to every reader of Shakspeare.

† "Description of England," prefixed to Holinshed's Chronicles, 1587.



T. A. CLAYTON DEL.

A. DIGBY WYATT, DIREXT.

T. BEDFORD LITH.

DETAILS OF THE HOME STOVE AND FENDER BY STUART AND SMITH OF SHEFFIELD

LONDON, PRINTED AND PUBLISHED 12TH DEC.R 1868, BY DAY & SON, LITHOGRAPHERS TO THE QUEEN.

PLATE CXXII.

DETAILS OF HOME-STOVE AND FENDER,

BY STUART AND SMITH OF SHEFFIELD.

In considering the more striking and characteristic manufactures of Sheffield, we are necessarily led, in the first instance, to the processes by which iron, when brought into the form of bars, rods, and sheets, is converted into steel; the material which forms the great staple of the local trade. This change is produced by a series of operations, in the course of which a certain amount of carbon is imbibed or absorbed by the iron while subjected to the action of intense heat.

We may premise that the best description of steel is made from the iron imported from Sweden, being chiefly the product of some mines at Dannemora, about thirty miles from Upsala, which have been worked for more than four centuries, and yield upwards of 4000 tons annually. The well-known superiority of the Dannemora iron has been by some writers ascribed to the presence of manganese, or silica in the ore, and by others to the processes employed in smelting it, particularly the use of wood fuel. The bar-iron of this locality is distinguished by its being marked with the letter L within a circle ("hoop L," as it is commonly termed); and other foreign varieties are in like manner known and valued as "C C N D," "double bullet," "gridiron," "C and Crown," &c.

The extensive steel works of Sheffield are of different kinds, and each bear distinctive appellations,—comprising,—"converting works," in which steel in its crudest form is produced; "tilts," or tilt works, in which the quality of the steel is further developed; "casting furnaces," in which the purest steel is produced by melting and pouring the metal into moulds; and "rolling mills," by which the steel is formed into every variety of bars and sheet: and in some, though comparatively few establishments, these different processes are all carried on.

The office of the converting-furnace, as its name denotes, is that of combining bar-iron with a sufficient amount of carbon to entitle it to the name of steel. It is, in fact, a large oven, containing two receptacles, or troughs, in which charcoal and iron bars are placed in alternate layers, covered at the top with a cement made of the particles worn by abrasion from the numerous grindstones used in Sheffield. The bars are subjected to a fierce heat for several days; more or less, according to the purposes for which the metal is intended. For files and similar articles, and for casting, a high degree of conversion is required. The metal thus converted for ordinary purposes is denominated "blister steel." After being again heated and toughened by the blows of a ponderous hammer, it is termed "common steel." "Shear steel" is a name originally employed to denote that kind which is adapted for making shears; and the process for bringing it to that state is called "shearing." Though an important operation, this may be simply described by stating that the blister steel is broken into pieces of about a foot in length, heated to a high degree, and subjected to the action of hammers worked by steam, so as to form a compact and uniform mass without flaws or blisters, and more malleable and tenacious than before. This action is for some purposes repeated; and according to the extent to which the metal is welded or sheared it is termed "half-shear," "single-shear," or "double-shear."

The application of heat is one of the most important and frequently recurring processes in the production of fine steel; and in no other manufacture is it required to so great an extent as in reducing this metal to a

fluid state, in order to cast it in moulds. The furnaces for this purpose are fed with coke, and copiously supplied with air by gratings from below. They are beneath the level of the floor, through which the fuel is introduced by small square openings, and each furnace is only eighteen inches square by four feet in depth. The steel is melted in crucibles, each nearly two feet in height, made with much care from the Stourbridge clay: when these have been let down into the furnaces, and brought to a white heat, fragments of steel are poured into them through a funnel. The crucibles, and the apertures of the furnaces, being then closed, the fire is kept up for four hours: four or five tons of coal are required to melt one ton of steel; but the result is the perfect fusion of the metal, which is raised in the crucible from the furnace, and poured into moulds, from which it is afterwards removed in the form of oblong bars or ingots, varying in shape according to their future destination.

Both shear and cast steel, when intended for the best description of goods, are submitted to an operation called "tilting," consisting of a further heating, and the action of enormous "tilt-hammers." The "tilts," or establishments in which this branch of the manufacture is carried on, are limited to it entirely, receiving the bars from the casters and shearers, and returning them after the completion of the operation.

The steel being thus prepared for working, it is applied to the production of innumerable articles of universal utility; and amongst these cutlery and edge-tools of every description have long held the foremost place, and conferred on Sheffield a world-wide reputation. The division of labour is there, as at Birmingham, carried to the utmost extent; and table-knives, pen-knives, forks, lancets, razors, scythes, saws, scissors, shears, spades, and edge-tools, are respectively the main objects of attention to different firms. The manufacture of table-knives, as might be expected, forms the most extensive branch of the cutlery trade. These, according to their quality, are made of bar-iron, common steel, shear steel, or cast steel; the blade, shoulder, and tang, being first forged upon the anvil, are hardened, by being plunged, when red hot, into cold water, tempered by being again gradually heated and cooled, and ground, sharpened, and polished in the "wheels," which, like the "tilts," form so remarkable a feature of the town. These "wheels" are large buildings fitted with an immense number of grindstones, varying from four inches to seven feet in diameter, and turned by steam; the polishing wheels being covered with a band either of tin alloyed with lead or of buff leather. Steel forks are generally made of blister or common steel, and, being forged roughly into shape, the prongs are formed by the pressure of a heavy stamp, aided subsequently by a fly-press. When filed and hardened, the prongs are ground by hand upon a dry stone; and this is one of the most deleterious operations which the working cutler has to perform. The fine particles of steel and stone produced by the action of the grindstone are inhaled by the workman, producing a disease familiarly known as the "grinders' asthma," so fatal in its effects that few of those engaged in the operation attain the age of forty-five. Ingenious plans have been devised for the prevention of this evil. One gentleman invented a shield of magnets to be worn over the workman's mouth, so as to arrest the particles of steel before their inhalation; another employed an equally simple remedy, in the formation of a wooden tube or chimney, immediately above the grindstone, its extremity being carried through the wall of the workshop; the revolution of the wheel being rapid enough to cause a current of air by which the noxious particles were effectually removed; but whether from a desire to maintain a high rate of wages, or from some other cause, the artizans employed have uniformly rejected these and other benevolent projects.

The greatest care is necessary in the grinding and tempering of razors; and the highest degree of scientific skill, with the greatest refinement of execution, have been displayed in their manufacture. A great variety of tools, and various modes of grinding, are employed in the production of scissors; and in these, as in other cutting instruments, much ingenuity and skill are displayed in the union of iron with steel, so as to combine economy with excellence. We cannot here enter upon the interesting processes involved in the manufacture of files, saws, screws, nails, needles, and other products of the industry of Sheffield. In grates and stoves, to which class of objects our present illustration belongs, iron and brass castings are extensively combined with steel; and our readers will find some valuable information on the principles involved in such objects, and the perfection with which they have been carried out, in the second volume of the "Treatise on Manufactures in Metal," in Lardner's "Cabinet Cyclopædia."

J. SLEIGH DEL.

M. DIGBY WYATT DIREX.

F. BAUER LITH.

EMBROIDERED BAGS FROM GREECE

PRINTED IN COLOURS BY THE KYNOCH PHOTOGRAPHIC ENGRAVERS TO THE QUEEN.

PLATE CXXIII.

EMBROIDERED BAGS FROM GREECE.

We take this opportunity of resuming the subject of Byzantine embroidery from our notice of Plate LXXX., and we shall proceed to trace the very extensive influence of the costume and workmanship of the Eastern empire in the middle ages. Many events contributed to render Byzantium the art-capital of the world from the time of its rebuilding down to the end of the twelfth century, when Christian art began to assume a new and peculiar character. The Emperor Constantine transported the most skilful workmen from Rome to his newly-founded capital; and it is by no means unlikely that the misfortunes which befell the former city from the armies of Alaric and Genseric, and the extinction of the Persian empire by the followers of Mahomet at a later period, rendered Constantinople almost the only city where the arts could be patronised or cultivated with any degree of security.

Numerous contemporary authorities agree in informing us that a decided similarity existed for nearly seven centuries between the costume of the Western nations and that of the Byzantine court; and this not only as respects the Imperial and regal ornaments, which might naturally be supposed to be imitated from the Eastern emperors. Even the MSS. of our own country show us that there was but little essential difference between the "kirtle," "mantel," "gunna," and "headrail" of the Saxon lady, and the "parure" of the matrons of Constantinople. The same observation holds good with regard to the costume of the other sex; the only difference being that the severity of our climate demanded a few additions in the shape of "hosen," "hoods," &c.

M. Potier has noticed a still more singular coincidence in his learned description prefixed to "Willemin's Monumens inedits," where he mentions a Greek MS. now in the Bibliothèque Nationale, containing no less than four portraits of the Emperor Nicephorus in his Imperial robes. In each case the shape of the garments is similar; but the small "plaques" of metal with which they are powdered, have their forms varied, and are remarkable as presenting us with the exact shapes of the spades, diamonds, clubs, and hearts, so familiar on the common playing cards of the present day.

By far the most common decoration of the garments of the nobility were the figures of birds, beasts, dragons, &c., which were generally woven in gold on thread upon a silk ground. So great was the exportation of these fabrics through the medium of the Venetians, that it may safely be asserted that they constituted the material of the more valuable garments of the higher classes throughout the whole of Europe. The first blow to this trade was the forcible settlement in Sicily of the silk-weavers from Corinth and Thebes in 1146, by George, the lieutenant of Roger I., who, having ravaged the whole of Greece, brought away these poor workmen as no inconsiderable addition to the plunder. They were, however, well received by the king, a building was allotted for their especial use in Palermo, and they no doubt contributed to improve the manufacture of the fabrics which were already in use among the Saracenic inhabitants.

This may account for the fact that nearly all the fragments of precious stuffs of that era, which have come down to our time, present us with inscriptions in Cufic characters. Almost all of these are generally supposed to have been imported from the East; but that theory is inconsistent with the fact that the Cufic inscriptions are frequently found in connexion with animals, birds, &c., which, by the rules of their religion, the Mahometans were expressly forbidden to imitate. The question however is, to a certain degree, settled by the discoveries of such fabrics in the tombs of Roger I., Arrigo VI., Arrigo VIII., and Constanza II., all kings of Sicily,*

* *Vide* Danieli's "Regali Sepolchri," in which interesting work many of these robes are figured.

and still more so by the inscriptions on the imperial robes now preserved at Vienna. The most remarkable of these is the alb, upon which are embroidered these words: "Operatum felici urbe Panormi XV anno dni' W de' gra' regis Sicilie ducat' Apulie et Principat cap' filii regis W indictione XIII (A.D. 1181)." There is, likewise, a Cufic inscription, but unhappily illegible, the ingenuity of the German antiquaries having as yet only been able to decipher the name of Otho.

M. Potier, to whom we are indebted for these details, also mentions an inscription in similar characters on the cope, containing the information that it was made in the year of the Hegira 528 (A.D. 1133), in the capital of Sicily, and finishing with wishes for the health of the king, Roger. The whole of these imperial robes are well deserving of the study of the antiquary and artist, inasmuch as they present at one view the whole processes of weaving and embroidery in the precious metals, with the application of pearls and jewels, an art in great request during the Byzantine period and throughout the whole of the middle ages.*

We learn from the MSS. that the practice of ornamenting the borders of vestments with jewels was common with the nobility and higher classes in Byzantium; and it is by no means improbable that in nearly all these cases the jewels were false, as we find them employed in the same profusion in the representations of furniture, &c.; while the extensive manufactories of glass, which were principally employed in the production of the mosaic work, would offer great facilities for carrying into practice that process of making false gems, so accurately described by Theophilus.†

The commerce of Greece in precious textile fabrics had probably become very nearly extinct before the end of the Crusades, as most of the patterns we meet with after that time present us with decidedly Gothic types. An exception must, however, be made with regard to Venice and Genoa, the former of which retained traces of Byzantine influence down to a very late period, more especially in the profuse employment of precious stones and pearls (or their substitutes) in most of the works where embroidery was required.

The other countries of Europe either made their own stuffs or imported them from a nearer emporium than Byzantium; and when we consider the various apparels and orfreys required in a single set of priest's vestments, we can easily believe that the trade of the "Broudeurs" was by no means an idle one. These "Broudeurs," as their name implies, were only employed upon the orfreys, and do not appear to have completed entire vestments, which latter branch of the trade was occupied by the "Chasubliers," "Etoliers," &c., who most probably dealt in but one kind of vestment.‡

M. Rédet has disinterred from the archives of Poitiers§ the bill of Colin Joyle for making the embroidered orfreys of a cope for the use of Charles VII., and for which he was to be paid the sum of thirty-five crowns; by no means an extravagant price, considering that the work was composed almost entirely of figures, and that two centuries before Philip III. confessed to Joinville that some of his embroidered garments had cost him as much as 800 livres Parisis.

We must not omit to mention that St. Gregory sent sundry vestments and altar furniture into England for the use of the new church which St. Austin had just established. These, no doubt, in the first instance, became models for the imitation of the Anglo-Saxon ladies, and so successfully did they pursue the art, that early historians especially praise our nation as excelling in three things: viz., goldsmith's work, the illuminating of manuscripts, and the embroidery of vestments. While we are obliged to doubt whether an impartial writer would say as much for us in the present day, we cannot but hope, considering the impulse given to these arts of late years, that at no very distant period the dead text may become a living reality.

* When the tomb of Edward I. was opened by the Society of Antiquaries in the last century, the stole was found to be decorated alternately with seed pearls and "plaques" of metal, containing false jewels.

† "Schedula diversarum artium."

‡ See le Dit de la Queue de Renart in "Jubinal's Dits et Contes."

§ "Annales Archéologiques," vol. i. p. 27.

PLATE CXXIV.

SPECIMENS OF ENAMELLING FROM INDIAN ARMS.

The objects represented in the present Plate will serve to remind the reader of the beautiful and elaborate articles of a similar description comprised in the Indian department of the Great Exhibition. In a future article we intend to offer some remarks on the general design and decoration of such objects; and we may therefore, on the present occasion, limit our observations to the admitted excellence of the steel produced in India, and the mode in which it is prepared for conversion into sword-blades, spears, and other weapons. In doing so, we shall avail ourselves of the lecture by Dr. Royle "On the Arts and Manufactures of India" (delivered at the Society of Arts, Feb. 18, 1852), which we have quoted in former pages; adding thereto some particulars collected from other authentic sources.

The learned doctor observes, that "it is difficult to understand how a primitive people could have overcome the difficulty of smelting iron and of forging steel; yet the Hindoos have long done so. It is hardly less wonderful," he adds, "to see a native of India, with no other tools than his hatchet and his hands, proceed to smelt iron, which he will convert into steel capable of competing with the best prepared in Europe." In reference to the extreme antiquity of these arts in the East, Dr. Royle observes that iron is mentioned in the earliest chapters of the Bible as being applied to purposes for which it must have been hardened. "Northern iron" is also spoken of in the sacred record; and Mr. Aikin* adduces reasons which render it probable that this expression refers to the countries east of Babylonia. A passage in Ezekiel mentions "bright iron, cassia, and calamus," which are all Indian products, as having been brought to Tyre. "The Hebrew name of steel, *paldah*, is evidently the same word as the Arabic, *foulad*, which is also in use in Persia, where Indian steel is known by the name of *foulad-i-hind*. Even now the best Persian swords are made with steel imported from India. Mr. Heath, at one time the managing director of the India Iron and Steel Company, and whose steel obtained a prize at the Exhibition, believes that the tools which the Egyptians used in engraving the hieroglyphics upon their obelisks and temples of porphyry and syenite were made of Indian steel. There is no doubt that the carvings in the ancient temples and fortresses of India were executed with steel instruments, as they are at the present day. That the Hindoos made steel which was highly valued in the time of Alexander the Great is evident from Porus making him a present of about thirty pounds of steel; and still earlier (about 1300 B.C.), in the Rig Veda, we read of chariots armed with iron weapons, of coats of mail, of arms and tools of different kinds, and of bright-edged hatchets." One of the traditions as to the death of Cyrus I. (529 B.C.) was that it was caused by the javelin of an Indian when he was making war upon that country.

The attention of scientific men in England was first publicly called to the peculiar properties and excellence of Indian steel in the year 1795, when Dr. Scott, of Bombay, forwarded to the President of the Royal Society some specimens of "wootz," as it is called in India, and which he described as "a kind of steel in high estimation among the Hindoos," at the same time requesting that some inquiries might be instituted with a view to obtain further knowledge of its nature and qualities. Some elaborate analyses, tests, comparisons, and experiments were accordingly undertaken by Dr. George Pearson, F.R.S., and the results were printed in the "Philosophical Transactions" (Vol. lxxxv. p. 322). Probably the specimens

* Lecture at the Society of Arts.

forwarded by Dr. Scott were of somewhat inferior quality; for more recent experience has conferred upon the Indian steel a higher degree of estimation than Dr. Pearson allows to it; although he admits its excellence in many respects.*

Adopting mainly the authority of Mr. Heath, we may briefly describe the processes of smelting and forging wootz as follows:—The ore used is a magnetic oxide of iron, consisting of 72 per cent. of iron, with 28 of oxygen, combined with quartz, in the proportion of 52 of oxide to 48 of quartz. It is prepared by stamping, or pounding, and then separating the quartz by washing or winnowing, and in these operations the Hindoo females are very dexterous. The smelting furnace is built of clay alone, from three to five feet high, and pear-shaped. The bellows, which are used in pairs, are of a kind common throughout India; each consisting of a goat-skin, untanned, but made pliable by being rubbed between the hands, and used with the hair side outside. The body of the animal is extracted by a large opening in the hinder part, so as to leave the skin of the carcass perfect, and a bamboo nozzle, ending in a clay pipe, is inserted at the neck. The fuel is charcoal, upon which the ore is laid, in a damp state, but without flux; the bellows are plied for about four hours, and when the ore is reduced it is taken out, and while red-hot is cut nearly through with a hatchet, in order to show the quality of the mass. The iron thus produced is forged by repeated hammering, until it forms an unpromising bar, from which an English manufacturer of steel would turn with contempt; but in the conversion of which, the Hindoo proceeds with the utmost success. For this purpose, he cuts it into small pieces, and puts about a pound into a crucible, with dried wood of the *Cassia auriculata*, and a few green leaves, either of *Asclepias gigantea*, or of the *Convolvulus laurifolia*. The object of this is to furnish carbon to the iron. The mouths of the crucibles are stopped with clay, and about twenty or twenty-four of them are built up in the form of an arch, in a small furnace: charcoal is heaped over them, and the bellows are employed to maintain a blast without intermission for about two hours and a half. The crucibles being removed, and allowed to cool, are broken, when the wootz, or steel, is taken out in the form of a cake rounded by the bottom of the crucible. Mr. Stodart, whose opinion is of great practical value, states that for the purposes of cutlery this product is "infinitely superior to the best English steel;"† but it necessarily happens that there is a difference in the quality of the cakes, some being occasionally honeycombed and otherwise defective. It is, indeed, a striking fact that the Hindoos are able to produce such admirable cast steel, in so short a time, with an application of heat which in this country would be deemed utterly inadequate. At Sheffield, it requires at least four hours to melt blistered steel in wind-furnaces of the best construction, although the crucibles are at a white heat when the metal is put into them; whilst in the Indian process they are quite cold when placed in the furnace.

As it leaves the crucible, the steel becomes an article of commerce; but for the operations of the native cutlers, it is drawn into bars, first by annealing for several hours in a small furnace, which softens the metal, and then by beating with a hammer of a few pounds weight. Two pieces of cast steel are welded together, by giving to each a sloping face, jagged all over with a small chisel, uniting these faces with some calcined borax between them, tying them together with a wire, and subjecting them to a red heat, and to a few smart blows of a hammer. So skilfully is this operation performed, that a powerful microscope is necessary to render visible the line of junction.

The manufacture of steel, and its conversion into weapons, is carried on in many of the large cities of India, especially in Lahore, Hyderabad, and Kashmir. In urging the cultivation of Oriental arts and manufactures, Dr. Royle particularly observes that, "the wootz steel might be largely consumed in Europe, and the highly-wrought arms of the East would be bought as curiosities, and for the artistic skill displayed as well in the cutlery as in the inlaying."

* An able abstract of Dr. Pearson's paper will be found in the "Treatise on the Progressive Improvement and Present State of Manufactures in Metal," in "Lardner's Cabinet Cyclopædia."

† Supplement to "Encyclopædia Britannica."

F SMALLFIELD DEL

W. & G. BY ATT. DIRECT

F MORAS LITH

SIDEBOARD WITH GLASS & FURNITURE BY SNELL OF LONDON
DESIGNED BY THE BARON MAROCHETTI

LONDON PRINTED AND PUBLISHED DECR 15TH 1852 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CXXV.

SIDEBOARD AND FURNITURE,

BY SNELL OF LONDON.

In all objects of furniture, excellence can only be attained by attention to three essential requisites,—the design, the workmanship, and the utility. Too frequently the first and last of these are neglected; so that although the skill of the cabinet-maker may be attested by the strength and durability of his work, it is often rather an encumbrance than an ornament. We are happy to see that a decided improvement is taking place in this respect, and have great pleasure in bearing testimony to the exertions of Mr. Snell to render furniture more an object of *art*-manufacture. From a communication, with which he has obligingly favoured us, we learn that the father of the present head of the house commenced business in 1775, and shortly after built a manufactory in Hanover Street, Long Acre, where the business was conducted until the year 1820, Mr. Snell, senior, having left the concern to his sons, who at that period removed to Albemarle Street. As the engagements of the house increased, they erected extensive buildings for their manufacture in the Belgrave Road, Pimlico, in which all the modern improvements in science and machinery are brought to the assistance of the cabinet-maker. One of the most important of these is the seasoning of the wood by a more rapid process than mere exposure to the influence of the atmosphere. The planks are placed for this purpose in a heated chamber, from which the vapour extracted from the wood is drawn off through the roof. Mr. Snell describes his process thus:—"Where the colouring of the wood is not subject to be injured, I prefer placing the wet wood into steam for a few hours, and, on removing the pieces, plunging them into cold water, then exposing them in the open air for a week, and, lastly, placing them in the hot room for fourteen days. This plan is quite effective for mahogany, but it would wash out the colour of many of our most beautiful woods; the dry process is, therefore, the best for all woods where the colour is fugitive." Mr. Snell, however, adds, that "the cabinet-maker still prefers the slow process of seasoning in the open air, as more to be depended on; for it not only removes the moisture gradually without cracking the wood, but it exposes the tendency of each particular board to twist, and thus determines its fitness for any particular application."

The sideboard and glass, which form the subject of our Plate, were designed by the Baron Marochetti, who has thereby shown how little most eminent talent may be degraded by being employed on such objects. We learn also from Mr. Snell that he has at various times executed designs by numerous architects of distinction, as well as by Sir F. Chantrey; and it is thus by endeavouring to obtain the highest artistic assistance, and by carrying out the designs in a superior style of workmanship, that this manufacturer has so successfully advanced in the struggle of competition, in which cheapness generally forms the most usual though often delusive attraction.

We shall now continue our historical sketch of the subject generally from the point at which we arrived in our last notice (Plate XC.)

As little change of any importance took place in the forms of the articles of furniture in the course of the fifteenth century, we may now briefly describe each separately, and subsequently glean some particulars from the MSS. of the arrangements of the interior of the principal rooms of a large house of the period.

For the chairs, the camp-stool type still continued in use, but the legs were bent into the form of a

semicircle; the upper portions, assuming the same, were connected by means of arms, and a back, often of considerable height, was added. Of course, those chairs with fixed backs were incapable of being folded up, but others were expressly made for this purpose. A chair of this description is in the possession of an inhabitant of Dover, and is said to have been used by Henry VIII. at the Field of Cloth of Gold. Another example of the folding type is the celebrated Glastonbury chair, which must be referred to the middle of the century; in this case the pieces could be easily separated, and the whole packed into a very small compass.*

At the beginning of the next century we read of little gilt chairs for women, scrolled chairs, turned chairs, and Flemish chairs; these, however, belonged to the parlour, or best room in the house; the other apartments would probably contain only benches and stools.

The board (or as it was called, "the table") and trestles continued in fashion down to a very late period, and in nearly all the inventories of the time there is frequent mention of "a fayre table and two trestles;" these latter, in the great dining-halls, were frequently morticed into the ground, but in general they appear to have been used for the convenience they afforded of being packed away into a small compass. Other tables, in the modern sense of the word, were no doubt in use, but appear to have been of small dimensions, and, with a few exceptions of the time of Henry VIII., no specimens are remaining.†

The cupboards, or, as we should now call them, the sideboards, often consisted of nothing more than a couple of trestles and a wooden top, resting against the wall. Sometimes, however, they were regularly framed into desks, or steps, upon which the plate was deposited, in which case they were called jointed cupboards. In France the number of desks varied with the rank of the owner, but we are not aware whether this was the case in England. Cavendish mentions Cardinal Wolsey as displaying one "six desks high, full of gilt plate, very sumptuous;" while the king, on the same occasion, exhibited to the French ambassadors one cupboard seven stages high, and thirteen feet long, full of gold plate, and another of nine stages. These cupboards owed most of their splendour to their coverings, for the most part composed of velvet, tapestry, and Turkey carpets, which began to be imported into England about the middle of the fifteenth century. The same coverings were used for the tables, and served to hide the unsightliness of the trestles.

The bedsteads, if we may believe the MSS. illuminations, were often very splendid, being covered with richly embroidered counterpanes and curtains. The curtains were hung, from a rough frame-work, covered with tapestry, and surrounded with a valence, the whole being suspended by ornamental cords from the beams of the ceiling. The regular four-post bedstead did not make its appearance much before the time of Henry VIII. A very fine example remains at Covely Hall, near Blackburn, Lancashire; the posts, in this instance, are elaborately carved, reminding us of the pillars supporting the stalls in Henry VII.'s Chapel at Westminster.

The *ark*, or chest, supplied the place of the modern wardrobe, and was often ornamented with much care; many are yet to be found in our parish churches, most elaborately carved. Those destined for domestic use were much simpler, but often decorated with gilding and colouring.‡ Many chests were simply framed of massive timber, and the panels ornamented with the linen fold. Others, again, owed all their decoration to their iron-work. When raised from the ground on feet, they were termed "standard chests;" and those for containing linen and clothes "trussing chests." Smaller coffers were used to contain papers, money, and jewellery, and were often made of wood, covered with "cuir bouilli," ornamented with an indented pattern, and secured by bands of iron. Occasionally they were of carved ivory, with the carnations, borders of garments, &c., coloured or gilt. But more frequently they were entirely covered with elaborate iron tracery, the intricacies of which were made apparent by means of red velvet introduced beneath.

One of the most curious relics of the middle of the fifteenth century is the cradle of Henry V., now preserved at Brislington, near Bristol. It may be described as a square box, made of four thin planks of oak, covered entirely with horizontal mouldings; the supports take the shape of a T reversed, strengthened by carved spandril pieces. On the summit of each is a carved bird. The more common cradles represented in the illuminated MSS. are not unlike the modern ones, and are exceedingly plain.

* As to the chair or throne in St. Mary's Hall, Coventry, Sir S. Meyrick considers that it was originally connected with the stall-work in the church; and its whole appearance, especially the tracery with which it is covered, confirms this supposition.

† Mr. Shaw, in his "Ancient Furniture," has engraved a folding-table, circa 1500, ornamented with "Romayne work," as it was then termed; which was a coarse imitation of those beautiful arabesques which we find so frequently employed in the French Renaissance.

‡ The chest of Sir Thomas More, which still exists, is covered with canvass, painted black; upon this, as a ground, are represented gay-coloured flowers, and, lastly, the whole of the iron-work is gilt.

BEDFORD LITH

PLATE CXXVI.

PANEL ORNAMENTED IN BUHL, FROM A CHIFFONIÈRE, BY FOURDINOIS, OF PARIS.

The particular kind of inlaid-work called *buhl* was first invented and used for the decoration of furniture by Boule, an ingenious cabinet-maker of Paris, in the time of Louis XIV. He was born there in 1642, and died at the advanced age of ninety. He was very much employed by the King, who assigned him a lodging at the Louvre, where he designed and superintended the execution of the rich and elaborate tables, cabinets, &c., which were the fashion at the Courts of Louis XIV. and his successor, and which are as much celebrated for their graceful forms and outlines as for their embellishment with inlaid-work. Reisner, another celebrated *ebeniste* of the same period, was also much patronised by both monarchs. The manufacture appears always to have been almost exclusively carried on in Paris, and though during the period of the Republic and the Empire it was little in demand, owing to the prevalence of a severe classical taste in all decoration, the varied demands of fashion at the present day have again brought it into use.

M. Fourdinois, the manufacturer of the chiffonière, from which the panel engraved is taken, has made himself a reputation by the works he has exhibited at the different Expositions at Paris. At that in 1844, when he was associated with M. Fossey, they obtained the silver medal; in 1849 that distinction was confirmed by a "rappel" to M. Fourdinois, who then appeared alone. The same gentleman obtained the Council medal for his works in the Great Exhibition; a distinction which was, perhaps, due rather to the excellent execution than to the correct taste of the design of some of the articles.

Although both buhl and marqueterie consist of inlaid veneers, they differ considerably in their methods of execution, which also affects the style of the ornaments thus executed, the former being confined to decorative scroll-work, frequently in metal, while the latter is more commonly used for representation of flowers and foliage.

Having already (Plate LXXV.) given some account of marqueterie work, we shall, in the present notice, offer some description of the process of ornamenting with buhl; in doing which, we shall avail ourselves of Mr. Holtzapffel's description in his admirable work on "Turning and Mechanical Manipulation:"—"In buhl work, the patterns generally consist of continuous lines, of which the honey-suckle ornament may be taken as a familiar example. To make this, two pieces of veneer, of equal size, are scraped evenly on both sides with the toothing-plane, and glued together with a piece of paper between them, for the convenience of their separation afterwards. Another piece of paper is glued on the outside, and on this the design is sketched; a minute hole is then made with a sharp-pointed awl, for the introduction of the saw, a spot being selected in which the puncture will escape observation. The veneers being fitted in a frame, the saw is then inserted, and the several lines of the work are followed by the blade, which is kept horizontal, but the frame and work are rapidly twisted about at all angles, to place the saw in the direction of the several lines. Considerable art is required in designing and sawing these ornaments, so that the saw may continue to ramble uninterruptedly through the pattern."

"When the sawing is completed the parts are laid flat on a table, and any removed pieces are replaced, and one of the veneers is stripped off with a palette-knife, which splits the paper. The pattern

is now pushed out of the other veneer, and any minute pieces are picked out, and laid aside. The cavity thus produced is now entirely filled up with the pattern cut out of the other veneer, and the pieces are retained in contact with a little thick glue. They are then turned over, and the toothings, or fine dust of the darker wood, are rubbed in to fill up the interstices, after which the work is laid aside to dry." It is then ready to be glued on to the piece of furniture it is intended to decorate, in the manner of an ordinary veneer, and is subsequently scraped and polished. The two veneers which are cut out form the *buhl* and *counter*;* the one exhibiting, for instance, a dark ornament on a light ground, and the other having the same pattern with the colours reversed. In the same way three thicknesses of wood may be sawn out together, and these, when cut through, split asunder, and recombined, would produce three pieces of buhl-work. Such are technically known as *works in three woods,* and constitute the general limit of the thicknesses. The designs for such work should be as much as possible arranged to have a nearly equal amount of each colour, in order to make each of the combinations effective. In buhl-work no part of the material is wasted, and this is one of the great differences between it and marqueterie. Stamps or punches are sometimes used in buhl-work of brass and wood, but only to a limited extent. All kinds of wood that are capable of being cut into delicate veneers, may be used in buhl-work, according to the description we have just given, but the term was originally more particularly applied to a combination of brass with ebony, or dark-coloured tortoise-shell. These were the materials which Boule himself almost exclusively employed, and he sometimes engraved the surface of the brass. Reisner used principally as the ground tulip-wood (called in France *bois de rose*), inlaid with flowers in dark wood, grouped in a less crowded manner than in ordinary marqueterie.

"When the material is in small pieces and costly, as pearl-shell, it becomes necessary to use several pieces, accurately placed edge to edge, to cover the entire surface to be ornamented. Sometimes in this material, in order to give additional elaboration and minuteness, the saw is made to follow all the outline of the counter, and thus leave only a narrow line of pearl: this is called internal cutting." But the effect of the counter is seldom equal to that of the true buhl, which shows the drawing of the ornament better, and the internal cutting of the pattern presents rather a thready appearance. The *stringings*, or fine lines of metal, which are introduced with pearl buhl, are generally of a white metal, such as tin or pewter.

* The "partie" and "contrepartie" of the old French manufacture, of which the former is regarded by *cognoscenti* as much the most valuable.

H. BAFFER DEL.

M. DIGBY WYATT, DIREr.

F. PEDEGO, SCULP.

GROUP OF CHINESE ENAMELS.

LONDON PRINTED AND PUBLISHED DECR 15TH 1852 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CXXVII.

CHINESE ENAMELS.

AMONGST the specimens furnished by the Great Exhibition of the ingenuity with which the natives of the Celestial Empire have in times past cultivated the useful and ornamental arts, few were more interesting than those which form the subject of our present Plate; for the opportunity of inspecting which the public were indebted to the enterprise of J. Rutherford Alcock, Esq., Her Majesty's Consul at Shanghai. The objects in question formed a portion of the valuable illustrations of Chinese industry collected by M. de Montigny, the French Consul at the abovenamed port, who was warmly assisted in his scientific researches by the Roman Catholic Missionaries in the interior of China.

Unlike most of the processes in use in that country, the practice of enamelling, although now for the most part fallen into desuetude, appears to be referable to a comparatively modern date. We learn from a document published by M. Pauthier in his history of China,* that under the reign of Thaï-wou-ti, of the dynasty of Weï, which lasted from A.D. 422 to 451, a merchant of the country of the great Youë-tchi, or Scythians, came to the court of that Emperor, and proposed to manufacture in China those various-coloured glasses which had been previously imported from western countries, and for which excessive prices had been paid. In pursuance of his instructions investigations were made in the mountains, and the necessary materials for the manufacture were ultimately discovered. This merchant succeeded in making coloured glass of the greatest beauty, and from his time the price of such materials diminished considerably in China. It has been ingeniously concluded by M. Labarte† that the people referred to as Scythians were no other than the inhabitants of Persia.

However popular such decorative substances as coloured glasses may have been, we have no direct evidence of the use of vitrified materials as enamel pastes, until nearly one thousand years subsequent to the above-named period. Numerous specimens exist, resembling in their general characteristics the objects we now engrave, and possessing internal evidence of chronological identity with a few examples, which bear inscriptions by which the date of their fabrication may be ascertained with comparative precision. It appears highly probable that the finest of such objects were executed during the Ming dinasty; since the interesting specimen in the collection of Mr. A. W. Franks bears date from A.D. 1426 to 1436, and that of M. Debruge Dumesnil also furnishes indications of having been executed in the King-taï period of the above-named dynasty;—corresponding with the years A.D. 1450 to 1457.

So far as we are aware, the art of fabricating vessels such as those exhibited by Mr. Alcock is completely extinct, and it is therefore difficult to describe the precise method by which they have been executed.

It is, however, apparent that threads or ribbons of metal, probably copper, have been bent into fanciful patterns in the interior of a hollow mould, and the compartments formed by such bands have been filled up with enamels in powder, in a manner precisely similar to that adopted by the Greeks of the Lower Empire, and described in our first notice of the art of enamelling, Plate LI. The whole being fused together, the external mould was removed, and the number of portions requisite to make up the entire vessel having been completed, they were doubtless put together by soldering, and the introduction of more readily fusible enamels. The singular coincidence between the peculiar tints and textures of the vitrified pastes

* "Chine, ou Description de ce vaste Empire," page 237.

† "Description des Objets d'Art, qui composent la Collection Debruge Dumesnil, par Jules Labarte," page 392.

employed in Chinese enamels (particularly the turquoise, the deep blue, and the pale sea-green tints), and those of the early Limoges *champ-levé* enamels, is scarcely less striking than is the identity of the processes employed with those of Byzantium.

It appears that, in later periods, the art of enamelling in China underwent a series of transformations, agreeing in many respects with those which succeeded each other in Europe. Although of great rarity, specimens have been found which show that the art of covering engraved surfaces with translucid enamels was practised in China with scarcely less success than in Italy. The Louvre contains a remarkable example of the proficiency of the Chinese in such a manufacture; and we may hope, either from M. Stanislaus Jullien, or from Mr. Wade, Her Majesty's Vice-Consul at Shanghai, to be furnished ere long with some interesting particulars as to its execution.

The latest enamels of China, and those which are manufactured in the present day, correspond to a certain extent with the ordinary painted enamels of the late Limoges school; with the difference, however, that the paste which forms the groundwork of the Chinese enamels is almost invariably left of its natural white tint, and that it is applied to the surface of the copper in a much greater thickness. Whether its nature may be that of a pure vitreous enamel, or whether a considerable portion at least may not be composed of fine China clay, is a question which has not yet been decided by chemical investigation.

It is necessary to remark that specimens of filagree enamel, executed in a manner similar to that adopted in the objects we engrave, are of extreme rarity in Europe. Occasionally only, cups or drinking vessels were made, during the middle ages, in such a manner that, when held up to the light, the coloured enamels, separated from each other by threads of gold, present the effect of miniature stained-glass windows. An exquisite object of this description, in the possession of Henry Bevan, Esq., of Twickenham, has been engraved by Mr. Shaw; by whom it is ascribed to the fourteenth century, although we should have been inclined to refer it to a somewhat later period. It was bought by Mr. Bevan, at Antwerp, many years ago, and is probably the most perfect example in existence of that rare variety of the art, specimens of which were known in the Middle Ages as "esmaulx de plite à jour." The earliest existing instance of such work is probably the beautiful cup preserved in the Bibliothèque Royale at Paris, representing Chosroes, King of Persia (A.D. 531–579); and the peculiar nature of its manufacture affords a clue to the source from which the Chinese derived their processes.

M. Labarte cites, from the inventory of Charles V. of France, some interesting descriptions of such objects; as, for example, "Une très belle couppe d'or, et très bien ouvrée a esmaulx de plite à jour, et est le hanap d'icelle à esmaulx à jour. Ung coutel à manche d'ivyre, et a en la lemelle dudit coutel une longe roye à esmaulx de plite ouvrée à jour."

Benvenuto Cellini* gives an interesting description of the esteem in which this art was held by Francis I., who, in the year 1451, showed him a beautiful specimen of it; and who was pleased to ask him many questions as to the processes employed in its fabrication. Cellini explained in detail the method pursued, which he has likewise recorded for the benefit of his readers. "With this explanation," he informs us, "he entirely satisfied the desire of that generous sovereign to know such secrets; and spoke at length of such minute details of his art, because that sovereign greatly delighted to hear him discourse, and of which, but for that desire, he would have deemed it improper to fatigue such noble ears with so humble a discourse."

* "Trattato dell' Oreficeria," cap. iii.

PAVEMENT IN ENCAUSTIC TILES BY MINTON & Co OF STOKE-UPON-TRENT.

M. DIGBY WYATT, DIREXT

LONDON PRINTED AND PUBLISHED DEC.R 15TH 1852 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

F.BEDFORD

PLATE CXXVIII.

PAVEMENT IN ENCAUSTIC TILES,

BY MINTON AND CO. OF STOKE-UPON-TRENT.

It seems probable that the manufacture of encaustic tiles may have originated in the endeavour to imitate the Roman Mosaic pavements by means of coloured substances inlaid upon stone or marble. Of this work a few examples have escaped destruction, and may be seen on the eastern side of the altar-screen in Canterbury Cathedral, and at the Abbey Church of St. Denis, and the Cathedral of St. Omer, in France. There are a few specimens of pavements, both in England and France, which seem to form a transition from the marble mosaics to the tile pavements so universally employed during the middle ages. In these each tile is of a single colour, but they are so combined as to form a polychromatic pavement in regular geometric designs. Such pavements existed at Fountains Abbey, Yorkshire;* also at Ely, where the tiles presented a great variety of form and size; and although the patterns were principally formed by the outlines of the tiles, other lines were sometimes impressed upon them to carry out the details of the design. The most elaborate example of such a pavement is that of the Prior's Chapel, built by Prior Crauden, A.D. 1321–1341.†

Amongst the earliest specimens of ornamented glazed tiles may be mentioned those discovered in the ruined Priory Church at Castleacre, Norfolk, some of which are preserved in the British Museum; they are coarsely executed, and the pattern which is impressed upon them is not filled up with any other colour.

The manufacture of encaustic tiles with more than one colour cannot probably be referred to a more remote date than the beginning of the thirteenth century; and one of the earliest and most beautiful specimens of the art is that of the pavement in the Chapter House at Westminster.‡ We have sufficient authority for referring this pavement to the date of the building itself, in an order of Henry III., "quod Parvam capellam apud Westm. tegula picta decenter paveari faceatis."§ The process of the manufacture may be thus briefly described; upon the quarry of red clay, partly hardened in the sun, the design was impressed by means of a stamp cut in relief, and the cavities thus formed were usually filled up with a whitish clay, sometimes of so thin a consistency as when dry scarcely to fill up the hollows; the tile was then thoroughly dried and burnt in a kiln, after which it was faced with a metallic glaze, which gave a yellow tint to the white clay, and imparted a richer colour to the red. Three ancient kilns have been discovered, which it is considered were used for baking pavement tiles. The first was found near Great Malvern,‖ and probably supplied the tiles used at the rebuilding of that Abbey Church about the middle of the fifteenth century. Another kiln was discovered near Droitwich, with a number of tiles in it identical with specimens existing at Worcester Cathedral, and at Malvern. The site of the third kiln is in Staffordshire, near Great Saredon, adjoining the Watling Street. It would, however, appear that the manufacture of encaustic tiles was usually carried on in every abbey or religious house whose lands contained the proper description of clay. This will in some measure account for the great variety of design which is to be met with; more than one hundred varieties existing at Malvern alone.

* Published in 1800, by William Fowler, of Winterton.

† Also engraved by Fowler.

‡ For parts of this pavement, see "Examples of Decorative Tiles," &c., by John Gough Nichols, F.S.A., London, 1845, where also a great number of other beautiful specimens of art are engraved.

§ Rot. Claus. 22 Henry III. m. 19 (A.D. 1237–38).

‖ A representation of this kiln, with a description by Harvey Eginton, Esq., may be seen in Dr. Card's account of the church.

The subjects of the designs may be divided into several classes:—those embodying sacred symbols; inscriptions, being verses of Scripture or pious maxims; armorial bearings of the sovereign or individual connected with the church by benefactions or otherwise; personal devices or mottoes; and ornaments conformable to the style of architecture, but without any special meaning. Of these the representations of armorial bearings are the most interesting, as frequently affording valuable evidence or illustration of the descent of property. At Great Malvern, a series of heraldic tiles illustrate the descent of the Chase and Manor of Malvern.* Several instances have been met with of inscribed tiles having been used, instead of the usual incised stone slabs, to mark the place of a grave beneath the floor of a church. Such an example occurs in the Lady Chapel at Gloucester, also at Kirkstall Abbey. In one, we believe unique, example in England, at Lingfield Church, Surrey,† a monumental slab is formed with three large tiles, on which a figure is represented by incised lines, not however filled in with a different colour; there is an inscription, but illegible, on the margin. The whole is covered with a greenish glaze, and, judging by the costume of the figure, the work may probably be referred to the early part of the sixteenth century. Another application of encaustic tiles occurs at Great Malvern, and is illustrated by Mr. Nichols. He says,—"Some very remarkable series of tiles are those to which the distinctive term of *wall-tiles* has been applied. These were intended as a decorative facing to the walls, and their patterns are so disposed as to be arranged in upright bands, which when united compose a rich decoration, similar in effect to the tabernacle-work, or carved tracery of wood, in place of which these tiles were undoubtedly intended to be used, either as a reredos of the altar or enrichment to the walls of the choir. No similar example of the application of ornament of a fictile nature to the interior decoration of a church has hitherto been noticed in England or on the Continent." The tiles composing the larger set bear the date 1453, and the series consists of five tiles with three varieties of the base. The other set is dated "Anno regni Regis Henrici VI. xxxvj." (1456), and is also composed of five tiles.

Besides these examples, a great variety are to be found in Winchester, Gloucester, and York Cathedrals, and in the Churches of St. Cross, Rumsey, Warblington, Tintern, Bredon, Tewkesbury, &c. It is not, however, to be supposed that the use of encaustic tiles was entirely confined to ecclesiastical buildings, as several examples have been found of their introduction into domestic architecture. A fine pavement was discovered in the housekeeper's apartment at Windsor Castle:‡ also in the ruins of the royal palace of Clarendon, near Salisbury, and in the ancient palace of Westminster. We may also allude to the remarkable specimens in the hall and guard-chamber of the Ducal Palace, at Caen,§ portions of which are now in private possession in this country.

Little is known of the ancient arrangements of tile-pavements, owing to the imperfect state in which they have, with one or two examples, been found. The pavement of the chantry chapel, on the north side of the choir in Tewkesbury, deserves attention on this account:‖ the panels are arranged in lozenge fashion, surrounded by a single row of plain black tiles. Another example is in the chantry called the Founder's Chapel. The most striking specimen,¶ however, is that before the high altar at Gloucester Cathedral, by Abbot Sebroke, 1454–57. This pavement was perhaps rivalled by those of Hailes Abbey, in the same county, portions of which still exist at Southam House, the seat of the Earl of Ellenborough, near Cheltenham. In the latter part of the sixteenth century, the manufacture of encaustic tiles upon the system described was superseded by the introduction of the glazed tiles, in which various colours were introduced on the surface. This art had been employed for some time previous on the Continent, but a single specimen only was to be met with in this country, namely, in the Mayor's Chapel at Bristol, the tiles there used having been imported from Spain.

Messrs. Minton, to whom so much credit is due for the revival and improvement of the fictile arts, have combined in their manufacture both the old system of the encaustic tiles and the subsequent plan of a surface glaze, and both these varieties are exemplified in the subject of the Plate. The processes of the manufacture have been, however, so much improved, that almost any shade of colour can be given to the clay employed, which no longer requires a glaze for protection, this being reserved to produce the more brilliant colours desired. When so used, it is introduced into a sunk pattern in the tile, and is thus protected from the wear to which in a pavement it must otherwise be subjected. Our limits will not permit us to trace the efforts of Messrs. Minton and Mr. Wright in the revival of this beautiful manufacture, but the increasing demand for such objects sufficiently proves that those efforts have been crowned with signal success.

* These are engraved in the work of Mr. John Gough Nichols.

‡ See Jesse's "Windsor Castle."

‖ Represented in Carter's "Ancient Architecture," vol. ii. plate 27.

† Engraved and described in the "Archæological Journal," 1849.

§ Described by Ducarel, in his "Tour in Normandy."

¶ Represented in Carter's "Ancient Sculpture and Painting," plate 17.

PLATE CXXIX.

PORTIONS OF STOVES,

DESIGNED BY A. STEVENS, FOR HOOLE, ROBSON, AND HOOLE, SHEFFIELD.*

We have already, on different occasions, adverted to the antiquity of grates and stoves, and to the excellence attained by modern manufacturers of those essential domestic comforts. Of the latter fact our present Plate furnishes another agreeable illustration; and cannot but tend to confirm the reputation already acquired by the gentlemen concerned in its production. Without adding to our previous remarks on objects of this description, we shall proceed to complete our notices of the general manufactures of Sheffield.

The history of the Sheffield trade, and the processes involved in the manufacture of steel goods, have been sketched in the articles XCIX. and CXXII. We shall now, in the same brief manner, advert to the production of plated goods; which divides with cutlery the chief attention of the local manufacturers.

The art of overlaying one metal with another of greater value is of considerable antiquity. In the year 1403 (temp. Henry IV.) an act was passed to prevent deception in putting off gilt or plated locks, rings, beads, candlesticks, harness for girdles, chalices, sword-pummels, powder-boxes, &c. for solid metal; all such workmanship upon copper or latten being prohibited, except in certain ornaments for the church, of which some part was to be left uncovered to show the copper or brass, "to the intent that a man may see whereof the thing is made, for to eschew the deceit aforesaid."† One of the methods more recently and generally adopted for silvering copper or brass depended upon amalgamation. Pure silver being dissolved in aquafortis, and precipitated, was mixed with sal ammoniac, and other substances, and the mixture was ground into a paste. With this the article to be silvered was rubbed over, and then exposed to a sufficient heat to allow the silver to run. Another common process was termed "French plating;" the article being made red-hot, leaf silver was laid upon it, and immediately burnished down, the heat and friction causing it to adhere. There are other scientific processes, not to mention electrotyping, by which metallic articles may be coated with gold or silver, but in all the methods formerly practised the objects were completely formed and finished before being subjected to such operations; whereas, on the Sheffield system, the silver is incorporated with the inferior metal before the goods are made up.

We cannot better elucidate the origin of the discovery, which has led to such important commercial consequences, than by the words of the learned historian of Sheffield.‡ "The year 1742," observes that gentleman, "is memorable in the history of Sheffield for the introduction of a new manufacture, which has become a formidable rival to the ancient and staple manufactures of the neighbourhood, or rather an effective auxiliary in advancing the town to the rank it now holds among the commercial towns of this great empire. It was in that year that Mr. Thomas Bolsover, an ingenious mechanic, being employed to repair the handle of a knife, which was composed partly of silver and partly of copper, was struck with the possibility of uniting the two metals, so as to form a cheap substance which should present only an exterior of silver. He began a manufacture of articles made of this material, but confined himself to buttons, snuff-boxes, and other light and small wares. It was reserved for another member of the corporation of cutlers, Mr. Joseph

* We regret that an error occurred in the style of the above firm as engraved upon Plate XCIX. A similar mistake was accidentally committed in Plate CI., the objects shown in which were produced by G. Wostenholm and Son, of Sheffield.

† "Statutes of the Realm," vol. ii. p. 147, folio. 1817.

‡ The Rev. Jos. Hunter, F.S.A. See "History of Hallamshire."

Hancock, to show how successfully it was possible to imitate, by this process, the finest and most richly embossed plate. He employed it in the manufacture of candlesticks, teapots, waiters, and most of the old decorations of the sideboard, which, previously to his time, had been formed of wrought silver. The importance of the discovery now began to be fully understood; various companies were formed; workmen were easily procured from among the ingenious mechanics of Sheffield; while the streams in the neighbourhood furnished opportunities of erecting mills for rolling out the metals. Birmingham early obtained a share in this lucrative manufacture;* but the honour of the invention belongs to Sheffield, as it is supposed to stand unrivalled in the extent to which the manufacture is carried, and the elegance and durability of its productions."

The method of "plating" metal discovered by Bolsover is as follows:—An ingot of pure copper, or of copper alloyed with brass,† is first made. Upon one surface of this ingot, which is twenty inches long by three inches broad, and one inch and a half thick, a sheet of silver, about one-fortieth of the thickness of the ingot itself, is laid; the two are tied together with wire, touched at their edges with a little borax, to act as a flux, and exposed to the heat of a furnace, by which they are firmly united. "This compound ingot is afterwards laminated in a rolling mill to a thin sheet; and the sheets so formed are brought into ornamental forms by stamping, punching, hammering, and other mechanical processes; the copper foundation forming the substance of the article, and the silver side the exterior surface."‡ Articles which are termed "double-plated," are formed of plates to which silver has in like manner been affixed on both sides.

The operations carried on in a plating factory may be distributed into six or seven departments, which, in large establishments, are conducted separately, several of them embracing other subdivisions of skill and labour. Of these die-sinking is the first, and perhaps the most important. The dies employed for stamping the metal into the requisite forms are infinitely varied, more than twenty being required for an object so simple as an ordinary bed-candlestick; and being necessarily of steel, they are very costly. Besides the operation of stamping; pierce-working, or punching, is employed in the formation of some articles. Braziering consists in soldering the different parts of certain objects together, and hammering others into the desired shapes; and this department involves a great amount of mechanical skill. Candlestick-making is another distinct branch of the plating-trade, and one in which the lathe is the principal instrument employed. The articles, when formed by the processes we have thus mentioned, are finished by chasing, embossing, and burnishing.

The beautiful appearance of plated articles, and their economy, soon brought them into extensive use; but, for a considerable time, they were liable to a serious objection; after some time the silver surface wore off the more exposed portions, and the copper became visible; or, as the workmen expressed it, "Alexander showed his face." To remedy this evil, Mr. Roberts, of Sheffield, obtained a patent in 1824, for a mode of preparing and affixing to such articles what are now familiar to all as "solid silver edges." By this process a sheet of silver is rolled very thin, and stamped into the form of the various ornamental edges and other parts of candlesticks, &c., the hollow behind is filled with solder, and the edges are then soldered on to the goods.

Whilst the manufacture we have thus described has placed a beautiful and excellent material within the reach of persons of moderate means, the humbler classes have been equally benefited by the introduction of "Britannia Metal," which has entirely superseded the pewter so long employed for domestic purposes. This composition is remarkable for its lightness, ductility, and cheapness. It was first employed on a large scale about the year 1770, by Mr. Jessopp and Mr. Hancock, of Sheffield, and its ingredients are thus described by an excellent authority:§—Three and a half cwt. of best block tin, twenty-eight pounds of martial regulus of antimony, eight pounds of copper, and eight pounds of brass. It is cast into ingots, and then rolled into sheets, from whence an immense variety of articles—teapots, coffee-pots, candlesticks, measures and other vessels, forks, spoons, &c.—are produced with the utmost facility from cast-iron, or even brass dies, worked in a similar way to the steel dies used for plated goods, as well as by a peculiar operation called *spinning*, or in the lathe. The material is one of the most tractable of substances to work from the sheet, as well as one that runs most readily in moulds; spoons being cast from brass moulds by thousands. Moreover, it is cut most freely by the turner. Such a combination of advantages fully accounts for its universal popularity and usefulness.

* We have elsewhere observed ("Journal of Design," vol. ii. p. 11) that the plate-workers of Sheffield met with formidable rivals in the late Mr. Boulton and Sir Edward Thomason, as they do in the successor of the latter, Mr. Collis.

† With pure copper fine silver alone can be used; whereas with copper and brass, standard silver is sufficiently fine, and the alloy may be operated upon by the lathe when pure copper may not.

‡ Dodd's "British Manufactures,"—Metals, p. 196.

§ Mr. Holland, author of the "Treatise on the Progressive Improvement and Present State of Manufactures in Metal," vol. iii. p. 103.

H.SAVE. DEL

M.DIGBY WYATT. DIREXT

F.BEDFORD. LITH

CRADLE CARVED IN BOXWOOD BY W.C.ROGERS. OF LONDON

LONDON. PRINTED AND PUBLISHED DECR 15TH 1852 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CXXX.

CRADLE, CARVED IN BOXWOOD, BY ROGERS OF LONDON, FOR HER MAJESTY THE QUEEN.

We have now the gratification of presenting to our readers one of the most pleasing revivals of the Cinque-cento style of wood-carving which has yet been executed in England. This beautiful work has been produced by Mr. William Gibbs Rogers, from the design of his son, Mr. William Harry Rogers. The name of the former gentleman must be familiar to all admirers of the art he practises, and it is to be hoped that he may long continue to maintain his hard-earned reputation. From his youth, when studying in the *atelier* of D. M'Lauchlin, of Printing House Square, and under the influence of Richard Birbeck, of Stamford, the last descendant of the workmen who were formed in the school, and under the eye, of Gibbons, Mr. Rogers laboured hard to emulate the glories of the last-named artist; and how admirably he has succeeded, his numerous works, executed in all parts of the country, unmistakeably show. Among the principal decorations upon which his elegant taste and perfect manipulation have been lavished, may be enumerated the fittings up of the Church of St. Mary-at-hill, in the City; the enrichments of the dining-room of the Prince de Moskowa, at Paris; those of the Pavilion, at Brighton; Chatsworth, Wentworth, and Stafford Houses; the suite of apartments at Kensington Palace, in the occupation of the late Duke of Sussex; and those of many of the mansions of the nobility and gentry throughout the country. Among all his elaborate productions there are, however, none to the execution of which he may justly look back with a more honest pride than to that of the elegant object we engrave.

In our notice of Plate LXII., we adverted to the carved decorations of ancient *ecclesiastical* buildings; and we may now observe that the *domestic* edifices of old England afford equally interesting examples of the art. To the latter class of buildings, indeed, belong the magnificent roofs of the halls of Westminster, Hampton Court, Eltham, Croydon, Lambeth, and many other palaces, mansions, and collegiate edifices. These magnificent apartments also present much beautiful carving in their screens and galleries. Figures of angels were introduced in the roofs of domestic buildings in the same manner as in churches. Mr. Shaw has engraved some interesting specimens of ancient carved furniture, including a chest in oak, of the period of Henry III. The cradle of Henry V., engraved by the same gentleman, furnishes a curious contrast with our present subject. Several carved reading-desks, and chests of the fourteenth and fifteenth centuries, are preserved in different English churches; and some beautiful chairs of equal antiquity may be seen in St. Mary's Hall, Coventry, at Evesham, and elsewhere. It was not, however, until the sixteenth century that carving was extensively applied to the decoration of furniture. The cabinets, cupboards, buffets, tables, bedsteads, &c., of that era, have been ably illustrated by Mr. Shaw; whilst Mr. Joseph Nash and Mr. C. J. Richardson have displayed equal taste and ability in their delineations of the staircases, chimney-pieces, ceilings, panelling, and other carved details of Tudor and Elizabethan mansions. A passing word is also due to the fine timber-framed houses which add so picturesque a charm to the cities of Chester, York, Canterbury, Gloucester, Shrewsbury, &c., presenting much elaborate and beautiful carving, especially in the barge-boards which decorate their gables. Many of these have been engraved from the careful drawings of Mr. B. Ferrey.

It would be an endless task to refer to the varied characteristics of the carvings of the time of Elizabeth

and James, overloaded, as they gradually became, with the most incongruous details. The very profusion of these enrichments rendered more acceptable that return to natural types which was effected with so much ability by the genius of Grinling Gibbons, to whose merits we can scarcely be expected to do justice in our limited space. Walpole is inclined to believe the statement that he was born in Holland of English parents, and educated in that country till his nineteenth year; and certainly he would there have enjoyed remarkable facilities in the study of the works of the great Flemish carvers; it is, on the other hand, asserted that his father was a Dutchman, and that the artist himself was born in Spur Alley, in the Strand, London. Be that as it may, we at least know that in the year 1671 he was found by Evelyn, during a casual walk, near Deptford, engaged in carving a relievo from a large cartoon by Tintoretto. Impressed with the extraordinary talent he displayed, Evelyn at once introduced Gibbons to King Charles II., who also admired his work; but, when it was submitted to the Queen, we are told by Evelyn that "a French peddling woman, who used to bring baubles out of France for the ladies, began to find fault with several things in it, which she understood no more than an ass or a monkey. So, in a kind of indignation," Evelyn caused the work to be removed from the palace, and it was afterwards sold for 80*l.*, though "it was well worth an hundred without the frame." Subsequently introduced by his patron to Sir C. Wren, Gibbons executed the noble works by which he is so well known at Windsor, Hampton Court, and St. Paul's Cathedral.* His finest productions, however, we need hardly say, are to be found at Chatsworth, Petworth, and Burleigh; but scarcely less beautiful examples of his skill are preserved at Houghton, Southwick, Hants, and Trinity College, Oxford. In 1714 Gibbons was appointed Master Carver in wood to George I., at a salary of 1*s.* 6*d.* per day; and he died in Bow Street, Covent Garden, on the 3d of August, 1721. The characteristics of Gibbons' style of carving are too familiar to need any comment. Many Flemish carvers were employed under Gibbons, at St. Paul's. Selden, his favourite disciple and assistant, lost his life in the act of saving from destruction by fire some of the carvings at Petworth; and Samuel Watson, another of his assistants, was so extensively employed upon the works at Chatsworth, that he received, in one sum, no less than 342*l.* Lysons and Dallaway have, in fact, doubted whether all the carvings at that place should not be ascribed to him; but, arguing from their excellence and the obscurity of Watson, Mr. Cunningham† ascribes the whole of the designs, and much of the carving, to the hand of Gibbons.

Mowatt, a French sculptor, who worked after Gibbons, and whose freedom of touch was most remarkable, deserves to be honourably mentioned. The pulpit in St. Paul's, with some chimney-pieces, &c., at Windsor Castle, were executed by him. During the reign of Queen Anne, wood-carving of considerable merit was employed, on tables and other small furniture, in connexion with buhl and ormolu work. Chippendale, a carver and cabinet-maker in the time of George I., failed, however, in an attempt to unite the style of Gibbons with the debased characteristics of the age of Louis XV. Some Flemish carvers worked in England about a century ago, and the royal state coach, designed and carved by Joseph Wilton, the sculptor, is a favourable specimen of the art. Mr. Hendrie, however, is, we think, fully justified in his observation that "no name stands between those of Gibbons and Rogers, in the history of the grand, or architectural, style of the art."‡

* For the carvings in the choir of St. Paul's he received 133*l.* 7*s.* 5*d.*, and for the throne in Canterbury Cathedral, 70*l.*

† "Lives of the British Sculptors," &c.

‡ "Journal of Design," vol. iv. p. 138.

PLATE CXXXI.

DECORATION OF A BOX OF WATER-COLOURS, &c.

EXHIBITED BY ACKERMANN AND CO. OF LONDON.

This contribution by Messrs. Ackermann to the Great Exhibition affords an agreeable and somewhat rare illustration of the felicity with which those who supply materials to artists may themselves be benefited in return, by the exercise of those very studies to the prosecution of which they minister the material requisites. The name of the firm in question has now, for very many years, been intimately connected with the developement of the Fine Arts in England; and we shall scarcely be assigning too much credit to a single individual, if we record our opinion that, but for the energy and taste of the late Mr. Rudolph Ackermann, the illustrated literature of England would have been in a far less elevated position than it has assumed in the present day. Connected as his name was with the principal illustrations of art and elegant accomplishments, from the commencement of his well-known periodical, the "Repository;" connected especially with Orme, in his exceedingly popular work on Transparencies; with Rowlandson, in the "Microcosm," and other works; with Nash, Pyne, and Pugin, in their architectural illustrations and designs; with the whole series of Annuals, through his publication of the foremost of them all, "The Forget-me-Not;" and possessing a peculiar claim to our respect as having given to the world the first English translation of Senefelder's work on Lithography; we cannot but believe that the influence of Mr. R. Ackermann materially contributed to the dissemination of a general sympathy for objects in which tasteful and artistic design constitutes a leading element. Contrasted with the elaborate works which now issue daily from the press, some of the illustrations with which he was associated may appear imperfect and inferior; but when we compare them with the pretentious deficiencies of Boydell, or the artificial insipidities of Lackington and the "Temple of the Muses," we cannot hesitate to ascribe to them a very high degree of merit.

It is a gratifying circumstance to find that the distinguished career of this true patron of art and artists is no less worthily pursued by his descendants; whose productions were not only rewarded by a Prize Medal in the Great Exhibition, but constantly receive a yet higher meed of approbation in the estimation and substantial encouragement of the public.

One of the subjects which, more than half a century ago, deeply absorbed the attention of the late Mr. Ackermann, was the preparation of water-colours, and the success which he attained in that important department of his business was warmly appreciated by artists such as Girtin, Sandby, Turner, Havel, and others,—the fathers of the essentially national art of painting in water-colours. The object which we now engrave is the cover to a magnificent case, containing specimens which not only serve to show that all the perfection attained by the late Mr. Ackermann has been preserved by his successors, but to illustrate the effect with which modern science and commercial enterprise have combined to enrich with more varied and glowing tints the resources of the painter's palette.*

* The case, which measures thirty-one inches by twenty-two, and fifteen inches in depth, contains 100 cakes of water-colours; which, with about twenty more, constitute the complete series manufactured by Messrs. Ackermann. An easel, a sketch-book, a choice assortment of sable brushes, ornamental alabaster slabs for mixing the colours, with various other implements, all elaborately and carefully prepared, complete the contents of the case. The handles and escutcheons are gilt, and the colouring and enamelling of the exterior have been executed by Mr. Davis, from the designs of Mr. Sleigh.

The limits of our present notice preclude the possibility of our indicating the materials of which Messrs. Ackermann's colours consist, or the processes upon which, in common with those of other manufacturers, their admitted excellence depends. We may, however, convey to our readers some idea of the extensive agencies which are called into operation, to supply, from the remotest countries of the globe, the ingredients necessary for their composition. Thus, from Saxony we obtain those delicate blues known as cobalt and smalt. Lapis lazuli, from which the costly and beautiful ultramarine is extracted, is found in Siberia and Persia, though an artificial ultramarine is manufactured in France and Germany; and indigo is brought from the East Indies and Central America. England, Germany, and China, yield the fine qualities of vermilion; whilst carmine is prepared from the minute cochineal insect of Central America and Mexico. For a long period France possessed the greatest proficiency in the preparation of the latter pigment, but the manufacture is now successfully carried on in England. The best madders are derived from Germany and Holland; the beautiful class of colours called chromes are produced in Siberia; whilst ochres of almost innumerable tints are found in most parts of the Continent, and in some districts of England and Wales. Sepia is extracted from the cuttle-fish, and China boasts exclusively of its matchless "Indian" ink. Blacks are mostly calcined from ivory, bone, or the tendrils of the vine, and other light woods. Gamboge is brought from America and the East Indies. Browns are obtained chiefly from bituminous deposits; but amongst them may be noticed that singular pigment, mummy, derived, as its name implies, from Egypt.

Many interesting additions to the colours previously known were, for the first time, presented to the public on the occasion of the Great Exhibition, and to these we cannot have a better guide than Mr. William Linton, whose work on "Ancient and Modern Colours, from the Earliest Period to the Present Time,"* is a most elaborate and valuable publication. Mr. Linton observes, that "among the novelties in this department of production was a large collection of native Indian ochres, sent by the Honourable East India Company, of every variety of tint, from the yellows and browns common to the ochres of European districts, to the pinks and purple reds which are less known as pigments, and chiefly found in countries believed by geologists to be of an igneous origin. There were other collections of ochres, also, from Canada and Trinidad. Several varied tints of green ultramarine were exhibited; durable transparent colours, well adapted for the palette, among which was an excellent permanent substance for Prussian and Antwerp blue. There were many other mineral colours of great use and beauty; as greens prepared from zinc and cobalt; a new bright yellow, chromate of cadmium; a subdued orange from cerium; a red from palladium; a beautiful rose pink and deep rich purple of varied hues from cobalt; a brown from iron; a new white from lead (Pattinson's oxichloride); and several more, of whose existence few had previously known; a series of beautiful silicates from the Potteries; various new colours made with zinc; also rich and powerful glazing colours, chiefly greens, browns, and yellows, prepared with fatty acids; and an artificial ultramarine blue, of the prismatic hue, from Alsace, resembling the finest lapis lazuli, and responding to the same chemical tests; an acquisition of whose value an estimate may be formed, from the fact, that a fine quality of the native pigment, such as is usually sold in the shops at *five guineas* the ounce, was exactly matched by the above example, the manufacture of which (having been repeated with the most perfect success) would be amply remunerated at half that number of *pence* for the ounce."

It would be improper to close our present remarks without alluding to the taste displayed by Mr. Sleigh in the composition of the design we have engraved. Some of the most successful plates given in this work bear ample testimony to the ability and talent of that gentleman; and it will be at once acknowledged that, in the object above described, he has displayed considerable powers as an original designer, in addition to those which have long since gained for him a high degree of reputation as a lithographic artist.

* Longman and Co. 8vo. 1852.

PLATE CXXXII.

AXMINSTER CARPET,

BY JACKSON AND GRAHAM OF LONDON.

The firm by which this admirable work has been produced has been long extensively engaged in business as furnishing upholsterers. Within the last seven years its taste and enterprise have been applied to the manufacture of carpets, with a success of which the present specimen is a striking illustration. Messrs. Jackson and Graham have produced numerous carpets of a similar kind to that before the reader; some of them remarkable, not only for their excellence in design and execution, but for their great size, being woven entire and without a seam. M. Eugène Prignot, a gentleman connected with their establishment, has in most instances furnished the designs for these works; but they have also availed themselves of the talents of other artists, both in London and in Paris. Mr. Peter Graham, a member of the firm, was one of the jurors in Class XIX. of the Great Exhibition, and in that capacity supplied much valuable information to Mr. Birkin of Nottingham, the Reporter to the Jury; and his official position necessarily deprived his establishment of that honorary reward which it would otherwise have unquestionably received.

In our notice of Plate CVIII. we adverted to the early substitutes for carpets in this country; and we shall be enabled, in the present and a future article, to give some general description of the different kinds of carpets which are now employed, and the processes involved in their production. In reference, however, to the carpets of Persia, India, and Turkey, we may, in the first place, adopt the valuable remarks of Dr. Royle, whose comments on the "Arts and Manufactures of India" have been so frequently referred to in this work. That distinguished writer refers the common use of small carpets or rugs in Oriental countries to the practice incident to the climate of sitting in the open air under the shade of trees; and he adds that "carpets, either of cotton, silk, or woollen, are employed in all Eastern countries, from the south of India to Turkey in Europe, for kneeling on at prayers, and for occasions of state." Carpets for the floors of apartments seem to have been first employed in Persia; and those called Turkish probably came originally from the former country, whence the manufacture may have been introduced into Turkey. Dr. Royle informs us that "printed calicoes of large size, and suitable patterns, are sometimes used for covering floors in India; and some fine specimens were sent to the Exhibition from Ahmedabad and from Mooltan; but the most common carpets employed are those made of cotton, and called *sutrunjees*, being of different colours, usually blue and white, or red, or orange, in stripes, squares, and stars; some of large size, and well suited for halls and tents. They are thick and strong in texture, the two surfaces alike, smooth and without pile. Good specimens were sent from Moorshedabad and Rungpore, some coloured kinds from Agra, and a large one, woven in one piece, from Ahmedabad. Another kind of cotton carpet is that with a pile of cotton, and similar in appearance to a Turkey carpet. Of this kind two specimens were sent from Sasseram, the ground being white, with a blue centre and border." Some very exquisite Indian carpets, made entirely of silk, were displayed in the Great Exhibition. That contributed by Maharajah Goolab Sing "was as beautiful a specimen of variety in the pattern, and brilliancy in the colouring, as well as of pleasing harmony in its general effect, as any in the building." Smaller silken carpets were contributed from Mooltan, Tanjore, Hyderabad, and Khyrpore. Woollen carpets and rugs from Mirzapore (the most famous seat of the manufacture), Goruckpore, Bangalore, Ellore, &c., were also forwarded to the Exhibition; and our readers will not forget the large carpet made by the reformed Thugs in the Government School of Industry at Calcutta.

We are told, in the Report of the Jury on these fabrics, that the loom commonly used in the East "consists of two perpendicular pieces of wood, fixed at some distance apart; which support a beam or roller at the top, upon which the warp is wound; and about two feet from the floor is another similar beam, upon which the carpet is rolled as it is made. The work is done entirely by hand, and the pile is formed by ties or short pieces of yarn, each of which is passed across the face and round the back of two warp-threads, having its ends drawn up between them. When a row of ties is completed, a shed is formed in the warp, and the shoot is then passed across from right to left and returned, binding the whole together. Upon this plan carpets of the largest dimensions are made in one piece. The number of shades or colours that can be used is unlimited, and any design can be copied with great accuracy." A model and drawing from Hoonsoor represented five weavers, seated before the perpendicular Indian loom; and a foreman seated, with book in hand, apparently giving directions as to the production of the necessary pattern.

Those which are denominated Axminster carpets, to which class the specimen we engrave belongs, are made precisely upon the principle, and much in the same manner, as those above described; as also are those of the Gobelins, of Aubusson, and of Tournay; and these, as is well known, constitute the most costly and magnificent productions of the kind in Europe. Axminster carpets were made in London by a Mr. Moore so early as the year 1757, when that gentleman obtained the premium offered by the Society of Arts for the best imitation of "Turkey" carpets. But the most successful specimens produced before the end of the last century were manufactured by Mr. Whitty, who carried the art to great perfection in the town in Devonshire whence it derives its name. About twenty years ago, however, the manufacture ceased to exist at Axminster, and has since been chiefly carried on at Wilton and in London.

Carpets of this kind are made entirely by the hand-loom, from designs carefully prepared upon ruled paper. The warp consists of linen yarn, which is arranged vertically in the loom. The weaver twists a coloured worsted yarn round two of the warp-threads, and then cuts it off with scissors, so as to leave two loose ends; repeating the operation with differently coloured threads, according to the pattern. When a row of these tufts is completed, he throws two shoots of linen across the web, exactly as in the Oriental process, to keep them in their places, and to strengthen the fabric. The ends of the tufts are then dressed, and cut or sheared, in such a manner that the linen which forms the foundation of the work is completely hidden from view. Every carpet is made in one piece, and the substance and strength of the fabric render it exceedingly durable and impervious to damp; whilst its capability for the production of the most elaborate patterns, comprising any number of colours, or shades of colour, is limited only by the skill of the artist and the manufacturer. We need hardly observe that the process of execution is slow, and that these beautiful carpets are necessarily expensive, and the demand for them limited accordingly. Messrs. Jackson and Graham state that they have made some specimens "with between five and six hundred different shades of colour, and with ten thousand ties or stitches in the square foot." In the Great Exhibition those gentlemen had a loom at work which excited much attention, and at which they made some small but very beautiful carpets for the Queen of Spain. The work is executed by girls, from eleven to seventeen years of age; Messrs. Jackson and Graham employing, on an average, about forty of these young persons. In the remarks with which they have kindly favoured us, they observe, that "those who are quick and intelligent become proficient in about six months; but" (as indeed is quite obvious) "it is only the most intelligent and experienced who can be trusted with the finest class of work, in which many shades of colour are used."

In a future article we shall advert to the Kidderminster, Brussels, Wilton, and other ordinary kinds of carpets.

J.A. VINTER, DEL ET LITH.

M. DIGBY WYATT, DIREX.

THE HOURS LEADING FORTH THE HORSES OF THE SUN – A RELIEF BY JOHN GIBSON, R.A. OF ROME.

LONDON. PRINTED AND PUBLISHED JANY 1ST 1853, BY DAY & SON, LITHOGRAPHERS TO THE QUEEN.

PLATE CXXXIII.

THE HOURS LEADING FORTH THE HORSES OF THE SUN,

A BASSO-RELIEVO BY GIBSON OF ROME.

In the remarks with which we accompanied our illustration of Mr. Gibson's beautiful statue of "The Hunter" (Plate XVII.), we offered a few particulars of the career of that distinguished artist, and promised, on a subsequent occasion, to illustrate the leading principles of the art of sculpture in relief in connexion with another of his exquisite productions. The skill in composition, and the consummate knowledge of the resources of his art, displayed by the sculptor in the work we now engrave (on the possession of which the Earl of Fitzwilliam may well be congratulated), manifest in the highest degree strong natural genius, corrected by an intimate acquaintance with the rules and limitations prescribed by severe study and refined taste.

Current as are the terms employed to designate the varieties of relief in sculpture, it is but rarely that their meaning is thoroughly apprehended, either by those who make use of them or by those to whom they are addressed. Until Sir Charles Eastlake* directed his attention to the subject, the precise conditions and terms of the art were but indefinitely classified; and — in English literature, at least — it is to him that we are indebted for the earliest satisfactory exposition of their meaning.

We may, perhaps, most readily convey their signification to our readers by describing the various degrees of relief as follows: — *Alto-relievo* consists of any figures or objects, modelled in the round, as far as possible, upon the same plane; and either completely detached, or but partially attached, to a wall placed behind them, upon which the shadows cast by them may be projected. *Mezzo-relievo* supposes figures so modelled to be pressed, to the extent of one-half of their depth, into whatever background may be applied to them. In *basso-relievo* we may suppose this quality of elasticity imparted not only to the wall, which admits of the insertion of the figures, but to the figures themselves; all the parts of which are in regular gradation, flattened down to considerably less than their natural projection; the contours or outlines of the object remaining the same as those exhibited in mezzo-relievo. *Bassissimo-relievo* is little more than a variety of drawing; the outlines being traced in the full proportion and rotundity of nature, while the extent of projection is reduced to a merely nominal thickness; the expression of the whole depending mainly upon the precision of the various contours.

It must be obvious from these definitions to how great an extent those fore-shortenings which the unrestrained action of figures presents, must be qualified by the conditions of a necessarily parallel projection. The art of the sculptor in such compositions consists, therefore, in the first place, in selecting such attitudes and dispositions of accessories as may retain the main lines in strict accordance with the surface which forms the background of the work. The necessity of placing the principal figures upon the same plane renders an almost complete isolation of each figure necessary for the purpose of distinctness; and it is only by binding the main lines in regular geometrical figures, that unity of action in the various parts of the composition can be preserved. In designing for relief, every part of each object must be exhibited. An arm cannot without deformity be hidden by a body, nor can one leg be concealed behind another. This necessity of exhibiting all the leading portions of the figure makes it exceedingly difficult to preserve a nice mean between that isolation

* "Contributions to the Literature of the Fine Arts."

which would render the subject disjointed, and that confusion which would inevitably arise from a huddling together of the various ingredients employed to tell the story. The difficulties thus glanced at lead to those ingenious devices by which an effect is conveyed to the mind by symbols rather than by realities, and which are known to artists by the name of conventionalities. "These," it is happily remarked by Sir C. Eastlake, "are supposed to be concealed in their results. Their ultimate resemblance to nature, and their successful effect in those circumstances, are the test of their propriety and necessity."

In relation to the subject of *alto-relievo,* the same distinguished writer remarks, that "a certain open display of the figure is generally adopted. The shadows, or rather the forms which project them, are so disposed as to present at the first glance an intelligible and easily recognised appearance; and the impossibility of changing the point of view, or of changing the light, limits the attitudes more than in a statue; and, as will also appear, more than in a basso-relievo; for in the latter, however distinct the outline in which the chief expression and meaning of the figures reside, the shadows within the extreme outlines are, in a great measure, suppressed. It is, in fact, by their being so suppressed, that the general forms become distinct. This is also the case when one form is relieved on another, for it will be found that the nearest object is then very much reduced and flattened." In *mezzo-relievo* greater liberty of action is permissible, since the attachment of the subject to the wall, at the line of its contour, ensures a clear projection of shadows, indicating the nature of the main outline, and less liable to confusion than those which may be cast by portions of figures, completely detached from the ground against which they are placed; while at the same time it is susceptible of surface-modelling as round as that which should be employed in alto-relievo.

To recur again to our great authority, we learn, in relation to *basso-relievo,* that, "as projection commands shade, so flatness commands light, and the flattest relief is hence fittest for an invariably dark situation. The flatness which ensures light would, however, be altogether indistinct and formless, unless the outlines were clear and conspicuous at the first glance. The contrivance by which this is effected, is by abruptly sinking the edges of the forms to the plane on which they are raised, instead of gradually rounding and losing them. The mass of the relieved figure being sometimes very little raised in its general surface, its outline would thus almost present a rectangular projection. In many instances the side of this projection is even less than rectangular. It is under-cut; like some mouldings in architecture, which require to be particularly distinct, and thus present a deeper line of shade. But if the figure can thus command distinctness of outline, notwithstanding the inconsiderable light it may receive, it is obvious that its lowness or flatness of relief will, in such a light, greatly aid its distinctness. Above all, this contrivance gives to a work thus shown in an obscure situation the effect of rotundity. Indeed it is a great mistake to suppose that the flat style of relief was intended to appear flat; and it is a great mistake to apply it in such situations as in the open air, where it must appear so, and be indistinct besides." It would be difficult to find more exquisite illustrations of basso-relievo than are presented by many of the coins and medals of Greece, as well as by the gems and engraved and embossed vessels of that country. Whilst in those works every internal marking is clearly indicated, the general effect is made to depend upon the perfect purity of the outline, and the graceful combination of the lines employed in its conventional arrangement. Consummate art is shown in so modifying the internal markings of the subject as to unite them in graceful curves or agreeable contrasts with the dominant lines furnished by the contours; just as, in surface decoration, it is necessary that every subdivision should either assimilate with, or emphaticise by contrast, the key pitched by the outline of the surface to be enriched.

The student of *bassissimo-relievo* will derive most valuable information as to the conventionalities appropriate to his style of execution from an examination of the exquisite hieroglyphics engraved in the earlier Egyptian tombs, in which the tenderest modelling of surface is made subordinate to a rigid severity of outline.

J. C. ARTON DEL.

M. DIGBY WYATT DIREXT.

F. BEDFORD LITH.

GAS CHANDELIER IN BRASS BY WINFIELD OF BIRMINGHAM

LONDON PRINTED AND PUBLISHED JAN.Y 1ST 1853 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CXXXIV.

STANDARD LAMP,

BY WINFIELD OF BIRMINGHAM.

From our notice of Plate XLIII., our readers will have been enabled to appreciate the excellence of Mr. Winfield's productions, of which the object engraved is a highly-favourable specimen, as well as to comprehend the leading processes involved in the brass toy-trade of Birmingham. In connexion with Plate XCVIII., we adverted to the history and progress of the trade of that locality, and then expressed our intention to allude in some detail to the numerous and varied manufactures of the town. Our limits will, however, preclude us from entering upon this extensive field, except in the most general manner, referring such of our readers as desire much information in small compass to the excellent little guide to the Birmingham workshops, prepared by Mr. W. C. Aitken, on the occasion of the visit of her Majesty's Commissioners for the Great Exhibition to that town.

Our historical notices will have shown that smiths, cutlers, and nailers, were the earliest class of workmen employed in Birmingham; and that its extensive fancy and miscellaneous trade is of comparatively recent date. The manufacture of nails is still extensively carried on. Wrought-iron nails are made in the surrounding villages, by the hand of the workman, from quadrangular rods, and the trade affords a scanty maintenance to from 20,000 to 30,000 persons; whilst, since the year 1813, cut nails have been produced by steam-power in the town itself to an amazing extent. Messrs. Scholefield, in the year 1849, turned out no less than 40,000,000 in one week.

The manufacture of guns is, perhaps, amongst the most extensive carried on at Birmingham. Introduced, as we have before stated, in the reign of William III., it did not attain much importance till the beginning of the present century, when the great demand for fire-arms, arising from the war with France, gave an immense stimulus to the manufacture. In the year 1804, 5000 stand of arms were made monthly in the town; and in 1810, the number had increased to the extraordinary amount of 30,000 monthly; a rate of supply which continued till the Peace of Paris, justifying the common assertion, that they were produced at the rate of one in every minute. The proof-house for testing gun-barrels was established by Act of Parliament in 1813; and, by guaranteeing the excellence of the Birmingham goods, greatly promoted the manufacture. It may, however, be observed, that there is no such trade as a gun-maker, or, at all events, no gun-manufactory in the town; the articles having to travel from one factory to another, to the number of more than twelve, before their different parts are completed and put together.

The extensive trade in buckles being superseded by the fluctuations of fashion, its place was supplied by an increased manufacture of metal buttons; which, for many years, enjoyed much public favour. Mr. John Taylor, who died in 1775, introduced the gilt button-trade, and is said to have accumulated a fortune of 200,000*l*. So great was the variety of these articles, that in 1781 their value varied from threepence to 140 guineas per gross; and so great was the skill of the manufacturers, that, at a later period (in 1818), three pennyworth of gold was made to cover a gross of buttons. We may add, as an illustration of the beautiful machinery employed in the trade, that a single revolution of the machine for making button-shanks, cuts the suitable length from the wire, bends it into its proper curves, and gives to its extremities the flattening which

is necessary to fix the shank to the surface of the button. In 1834, one manufacturer had in his workshop 10,000 double sets of cut-steel dies for livery-buttons only; and in 1849, no less than 135 firms were engaged in the button-trade. Horn, shell, glass, pearl, paper, jet, coal, wood, cornelian, ivory, and other materials, are also employed in Birmingham in making fancy buttons.

Any notice of the productions of Birmingham would be imperfect without a reference to the great name of Boulton. He established, in 1764, at Soho, in the suburbs of the town, that great factory which is associated with the proudest recollections of every Englishman. Originally intended to supply Europe with "toys," the motive power employed at Soho was water; subsequently steam-power, on Savary's principle, was introduced; and in 1775 the genius of Watt, uniting with that of Boulton, rendered the establishment the grand focus of engineering skill and manufacturing ingenuity. So great were the results of Watt's extension of steam-power, that between 1780 and 1836, no fewer than 169 steam-engines were erected in different factories in the town. In 1839 Birmingham possessed a working power of 3436 horses,* equivalent to the labour of 55,000 men. Ten years later it was computed that this gigantic power had increased so much as to represent the labour of 100,000 men, requiring the supervision of about 7500 persons, men, women, and children.

Messrs. Boulton and Watt, at an early period, applied their energies to the stamping of medals, tokens, &c.; and, in fact, to all the operations of coinage. They were employed in this department by the State; and some of the copper coinage of the close of the last century, bearing the name of their far-famed establishment, is still in circulation. In their hands, as well as in those of Sir Edward Thomason, and his able successor, Mr. Collis, the medal business has been carried to very great perfection, both in the beauty of the dies and in the precision of striking. We have already (Plate CXXIX.) alluded to the adoption of the Sheffield plate-trade by these and other Birmingham manufacturers.

The brass toy-trade owes much to the genius, industry, and taste of the late Mr. Messenger, who was in the habit of employing the first artists in the kingdom as designers. Specimens modelled by Flaxman, Chantrey, and others of almost equal reputation, still decorate the pattern-room of his son and successor. The brass furniture of Mr. Winfield displayed in the Great Exhibition was valued at 3000*l.*, and a copious account and illustrations of it will be found in the "Official Descriptive and Illustrated Catalogue."

Though the pin-trade of Birmingham is confined to a few hands, those few manufacture upon a large scale. From the works of Mr. Phipson there frequently issue a million and a half of pins per day. The steel-pen trade is also very extensive. Mr. Gillott, the principal manufacturer, produced in 1843 no less than 105,125,493 of these useful articles. The subject of electrotyping, as practised by Messrs. Elkington and Co., will be found described in other pages of this work.

In some degree apart from metal-work, japanning occupies a large share of industry in Birmingham. The staple trade of old John Baskerville, the printer, was that of a japanner; which, indeed, he carried on from 1740 to 1770. His apprentice, Clay, first used papier-mâché boards, which he made himself by carefully glueing together a succession of sheets of unsized paper. He realised a large fortune by his labours; and it is satisfactory to know that his success has been since surpassed by Messrs. Jennens and Bettridge, and other manufacturers.

We might enlarge considerably upon many curiosities among the Birmingham productions; but we must conclude with simply noticing the often-quoted fact, that on one occasion an order was actually given for 500*l.* worth of dolls' eyes; whilst, as an illustration of the effect of labour in enhancing the value of the most trifling articles, we may mention watch-springs, which, as finished in Birmingham, acquire a value equal to 20,000 times that of the raw material.

* Of these 1770 horse-power were used in working metals; viz. 162 by iron-founders; 570 in rolling copper, brass, &c.; 150 in drawing wire; 201 in iron forges and wrought-iron nails; 74 in nail-cutting; 104 in screw-making; and 24 in drawing metal tubes.

J. SLIEGH, DEL.

M. DIGBY WYATT, DIRIXT.

F. CHERVAL LITH.

SPECIMENS OF INDIAN ENAMELLING. SELECTED FROM THE ARMS DISPLAYED IN THE GREAT EXHIBITION.

LONDON PRINTED AND PUBLISHED JAN.Y 1ST 1853 BY DAY & SON, LITHOGRAPHERS TO THE QUEEN.

PLATE CXXXV.

SPECIMENS OF DECORATION OF METAL-WORK, SELECTED FROM INDIAN ARMS.

The immense number, variety, and singularity of the Indian arms and accoutrements exhibited in 1851, cannot be better described than in the words of the "Official Descriptive and Illustrated Catalogue:"—"In this collection we have a curious display of what would seem to be drawn from a museum storing the productions of various ages, but which are actually the arms in present use in different parts of India. Thus we have the bows and arrows as well of Assam as of north-west India, and shields from both localities as well as from Cutch: spears and battle-axes, two-handed swords, and daggers in every variety; chain as well as sheet armour, both for man and horse, with plumes for the helmet. Along with these we have the match-lock, flint-gun, and detonating lock,—the two latter imitated from European models; guns to be carried on camels, others to be mounted on hills; models of cannon and of mortars from Lahore,—all indicating the attention paid by the natives of India to arms. This is especially conspicuous in the care and taste with which many of them, as well as the accoutrements, are ornamented. Among the curiosities may be mentioned a shield, with four pistols concealed in its centre; complicated daggers, especially one which, in striking, separates into five blades; a sword which separates into two; and another with pearls let into the middle of its blade. All of these indicate the skill of the armourers, some of whom always form a part of the regular establishment of princes in the East; but the beautiful Damascus blades, the twisted barrels of the match-locks, and the skill with which the blade of one dagger is concealed within another, are to be admired as specimens of the workmanship of the natives of India as cutlers and gunsmiths, even in the midst of the works of industry of all nations."*

In our notice of Plate CXXIV. we described the admirable steel used by the Hindoos, and our engravings will sufficiently illustrate the refined taste with which the greatest magnificence of decoration is applied to these, as to all other objects of Indian origin. Almost every production of nature and art, except the human form, is represented, in the most exquisite conventionality, in the florid enrichments of these works. The religions of the Hindoos, the Persians, and the Mahommedans, expressly preclude the representation of human figures, and, consequently, foliage and inscriptions abound where there might otherwise have been such a kind of ornamentation; but some figures, probably representing the signs of the zodiac, or personages of the Hindoo mythology, are occasionally met with, as upon a sword-blade from Lahore. Goldsmiths' work, jewellery, embroidery, and enamelling of the most elaborate and costly description, are employed in the decoration of sheaths, hilts, and other accessories. In the latter art, the natives of all parts of India are peculiarly skilled.

A passage from a recently published volume entitled "Cutch, or Random Sketches of India," will further exemplify the variety and beauty of Oriental arms. "The armour of Cutch particularly deserves notice, as singularly beautiful in its design, manufacture, and ornament. Every military native possesses a sword, shield, and spear, which he is never seen without. The shield is made of transparent rhinoceros-hide, decorated with gilded wreaths of flowers, and strengthened with bosses of richly-worked gold. The spear-handles are made with several joints of fine steel, brass, and a sort of dead silver, which the workmen plate

* Such a collection of Indian arms as that presented in the Great Exhibition can scarcely be again witnessed; but some fine specimens preserved in the Tower of London possess an additional interest as trophies of British valour.

on iron with surprisingly good effect. In addition to these arms is the Cutch matlock, made of unusual length, its dark wood curiously inlaid with ivory and silver. The Cutchee warriors also use that ancient weapon the axe, the handle of which is beautifully plated with dead silver, inwrought with patterns of graceful foliage in fine gold. Poniards are numerous; some of them of a most exquisite device, the hilts bossed with gems, and the crimson-velvet sheaths worked with seed pearls, or a rich filagree pattern of gold or silver. They include also among their weapons the Arab double-edged sword, which has a slight, straight blade of highly-tempered and elastic steel, about six feet long. This tremendous weapon the natives grasp with both hands, and whirl about with the most accomplished ease. During the fast of Mohmrum, numbers of men, armed with these swords, and a sort of loaded mace, much resembling that used by the *secutores* of the gladiators, precede the ornamented bier of the grandsons of the Prophet; and when the procession halts they join in sham combats,—a practice which is with these men a sort of authorised profession. Although the concourse of spectators on such occasions is immense, and their confusion indescribable, no danger is incurred by the crowd who surround the combatants; their management of the formidable weapons they wield being so eminently skilful."

The beautiful Damascus blades, so common in India, are manufactured by a process which has never been satisfactorily described; but the admirable watered appearance on the surface of the steel, produced by black and white fibres or veins, in parallel, waving, or interlacing lines, has been successfully imitated by the scientific and manufacturing skill of French and English artists. M. Breant was the first to establish by analysis that, the Damascus blades are formed of a "cast-steel, more highly charged with carbon than that of Europe, and in which, by means of a cooling suitably conducted, a crystallisation takes place of two distinct combinations of carbon and iron."* Analogous to these are the twisted gun-barrels of the East, which have in like manner been extensively imitated. The process of manufacturing them from the rusty hoops of European casks, and similar materials is too complicated to be here described. A most interesting account of it as conducted at Kashmir will, however, be found in Moorcroft's "Travels in Hindostan," &c. vol. ii. pp. 195–213. Mr. Thornton, in his able "Gazetteer of India," observes, that "Kashmir has long been famous for gun and pistol barrels. The artisans employ extraordinary pains, care, and time in the process of fabricating them, and succeed in producing work of great beauty and excellence, and of various kinds,—plain, twisted, and damasked. The iron employed is that brought from Bajour, in the Eusufzai country, and, though loaded with impurities, in consequence of the rough mode of smelting practised in the first instance, it is sold in Kashmir for three times the price of that raised in the valley or the neighbouring mountains; and, by suitable processes, is rendered a material of great purity, tenacity, and strength. This manufacture, like all others, has much decayed under the domination of the Sikhs, who are furnished with arms from Lahore.

Lahore, as we have before stated, is indeed the principal depôt for the manufacture of arms of every description, but it is carried on in a greater or less degree in most of the large towns of the continent; and whilst the art of enamelling is also generally diffused, its choicest specimens are derived from Cutch, Scinde, and North-western India.

* Ure's "Dictionary of Arts, Manufactures," &c. (8vo. 1843); in which work this subject is more fully discussed.

M. DIGBY WYATT DIREXT.

DECORATION, DERIVED FROM THE ALHAMBRA;

BEING A PORTION OF THE CABINET OF THE QUEEN OF SPAIN AT ARANJUEZ BY RAFAEL CONTRERAS.

LONDON PRINTED AND PUBLISHED [illegible] 1853 BY DAY & SON [illegible] THE QUEEN.

PLATE CXXXVI.

DECORATION,

DERIVED FROM THE ALHAMBRA; BEING A PORTION OF THE CABINET OF THE QUEEN OF SPAIN, AT ARANJUEZ; BY RAFAEL COUTRERAS.

The beauty and richness of the specimen of decoration engraved in the present Plate will serve to convey to the reader some idea of the adornment of the sumptuous apartment in which it is introduced; and those who remember the skill displayed by its exhibitor in the production of some beautiful models, on a small scale, of portions of the Alhambra, will readily give Senhor Coutreras credit for the ability which he is said to have evinced in fitting up the royal apartment at Aranjuez.

It is but comparatively in recent years that the attention of the English public has been directed to that beautiful style of decoration of which the object engraved presents an admirable and pleasing specimen. The Travels of Swinburne, in the years 1775–6, appear to contain the earliest notices in this language of the importance of the Moorish style of architecture; a subject to which the great Spanish work on the "Antiquidades Arabes de Espana" (published in 1804), gave a recognised literary value. The engravings executed by Mr. Murphy,* although sadly incorrect, served to direct public attention to the subject of Spanish architecture, and no doubt stimulated the publication, between the years 1806 and 1812, of the great work of the Comte Alexandre de la Borde, "Voyage Historique et Pittoresque de l'Espagne." It was reserved, however, for Mr. Owen Jones to furnish us with really trustworthy materials for appreciating the refinements of the palmy days of Moorish art in Spain.

In the summer of 1834 that gentleman, in connexion with his friend, M. Jules Goury, visited Granada, for the purpose of presenting to the world a more perfect representation of the palace of the Alhambra than had before been obtained. In the preface to his great work, Mr. Jones observes that "he believes they derived peculiar advantages for the fulfilment of this design, from having previously passed a considerable time in Egypt in the study of the valuable remains of Arabian architecture which that country possesses. After a residence of six months in the Alhambra, M. Goury fell a victim to the cholera, which at that time infested the whole of Europe. Overwhelmed by the loss of an attached friend and valued coadjutor, Mr. Owen Jones at once returned to England, and, in the following year, commenced the publication of the original drawings. In the spring of 1837 he revisited the Alhambra, and completed the collection." Every measure was adopted to ensure perfect accuracy; and the publication (unaided by assistance of any kind from the Government) of a work so complete and beautiful as the "Plans, Elevations, Sections, and Details of the Alhambra, by Owen Jones, Architect" (folio, 1842), was a circumstance tending in a high degree to vindicate the character of England from that charge of apathy to the beauties of art which has been so frequently brought against it in foreign countries.

It would be impossible, within the limits of a notice such as the present, to follow Senhor Pasqual de Gayangos through the interesting historical notice of the developement of art amongst the Moors, which he

* In his "Arabian Antiquities."

has prefixed to Mr. Owen Jones's work. We shall, therefore, prefer to glean from the writings of the last-named gentleman some particulars concerning that style of which he may be regarded as pre-eminently the illustrator in this country. In respect to its general features, he tells us that "the architecture of the Arabs was essentially religious; the offspring of the Koran, as Gothic architecture was of the Bible. The prohibition to represent animal life caused the Moors to seek for other means of decoration,—such as inscriptions from the Koran, interwoven with geometrical ornaments and flowers, not drawn decidedly from nature, but translated through the loom; for it would seem that the Arabs, in changing their wandering for a settled life—in striking the tent to plant it in a form more solid—had transferred the luxurious shawls and hangings of Cashmere which had adorned their former dwellings to their newer and more permanent abodes, changing the tent-pole for the marble column, and the silken tissue for the gilded pilaster."

Thus it was that the Moors obtained originality of style, and escaped from those trammels of imitation to which they had been subjected in the earlier works which they executed after the model of those of Byzantium. Those very elements which would at first sight have appeared likely to cripple the resources of the Moorish architects, ultimately tended to their emancipation. That prohibition to represent animal nature, even in mere colour, which, as Mr. Hope observes,* condemned their architects "to an almost incorrigible nudity," probably led to those singular combinations of facets and angles which ultimately received, "in the warmer soil of Islamism, so ample a cultivation as by degrees to cover the capitals, the cornices, the brackets, the groins, the spandrels, the ceilings, and the cupolas, with all the congelations and stalactites of the richest grotto."

The students of the history of art will doubtless find delight in tracing, through the writings of M. Girault de Prangey, the gradual divergence of the Moorish architects from their Byzantine models, as they advanced from the monuments of Cairo and Cordova to those of Seville, and ultimately of Granada. One by one, the features common to Greek art became merged in those peculiarities which at length, by their geometrical intricacy, appeared to afford no clue to an analysis of the secret of their combination. Mr. Owen Jones has, however, succeeded in unravelling these mysteries, and in the text of his great work may be found a few simple rules in subordination to which not only those elaborate stalactite formations to which Mr. Hope alludes are shown to have been constructed from a few simple elements, but a key is given upon which their most complicated interlacing patterns are shown to be dependent for their interminable variety and yet agreeable order.

In relation to the later, and even actual architecture of the Mahommedans, Mr. Jones, in a highly interesting paper on the Great Exhibition, in the "Journal of Design,"† has remarked that anomalies, corresponding with those which may be observed in the history of Christian art, may readily be traced. "Whenever the Mahommedan invaded the conquered Christian nations, drove them from the soil, occupied their temples, and devoted them to the worship of their own God, we find that all future buildings erected in the same climes have felt the influence of those already adapted to the new worship: but as the religion spread far and wide to new countries beyond this influence, the Mahommedans, left to the full play of their lively and fruitful imaginations, produced and perfected the most refined and elegant style of architecture that has ever yet appeared. Shorn as they are of their power to produce great works, they are still faithful to the art, as to the religion of their ancestors, and the many wonderful specimens of their industrial works in the Great Exhibition show them to be still as equal in the power of producing refined works of art as they were in any period of their history."

* "Historical Essay on Architecture," page 154.

† Vol. v. p. 91.

P H DELAMOTTE, DEL

M DIGBY WYATT DIREXT

F BEDFORD. LITH

OBJECTS IN SILVER BY FROMONT MEURICE OF PARIS

LONDON PRINTED AND PUBLISHED JANY 15TH 1853 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CXXXVII.

GOLD AND SILVERSMITHS' WORK,

EXHIBITED BY FROMENT-MEURICE OF PARIS.

In the remarks accompanying Plate XCIII. we traced the artistic and industrial developement of the establishment of M. Froment-Meurice, and in the present article we shall confine our attention to some of those technical processes, by means of which the most beautiful objects executed for him have been elaborated.

We cannot but recognise especially the great ability with which he has revived the art of jewellers' enamel, after the manner of Cellini, or, yet more, after that of the celebrated Florentine, Amerigo Amerighi. In the beautiful chalice which forms the centre of our present group, six paintings in enamel are introduced; representing the sacrifice of Abraham, the sacrifice of the Paschal Lamb, the Israelites gathering manna in the desert, the birth of Our Saviour, the Presentation in the Temple, and the Virgin Mary at the foot of the cross. This exquisite work of art, the design for which was given by the Abbé Conballot, has been executed for the Pope; and the details of its workmanship evince the most refined manipulation. A shield in silver and iron, partly worked in repoussé and partly cast, afforded proof of the admirable skill in chasing attained by M. Froment-Meurice.

It is, however, in the art of beating up silver that the productions of M. Froment-Meurice display the highest degree of excellence. Under the hands of his workmen that metal has been moulded as readily as wax or clay. In the ordinary practice of the art, and where the amount of relief desired is but slight, the process is comparatively simple; consisting of an alternation of pressing out from the back, and of beating in from the face; the tools employed being the hammer, the snarling-iron, the chisel, and the graver. The production, for example, of a moderate bas-relief is, in its technical details, sufficiently simple. A plate of silver, of about the thickness of a shilling, is fixed on an elastic cement. The outline of the design being traced with a punch, the forms are beaten into relief with a hammer, whilst the cement beneath prevents the rending of the metal under the blows. When the necessary relief is obtained the plate is turned over on the same cement, and the forms are then corrected by being beaten back, and perfected by means of chasing. When, on the contrary, the work involves a great projection, or is one in which certain parts should be detached from the background and exhibited in the round, the difficulty is very greatly increased. By this latter process all the most celebrated pieces of plate of the Renaissance period were executed, and it is only by returning to this practice that the sculptor in metal can hope to attain the perfection of his art.

Never since the days of Cellini has greater excellence been attained in this, the highest department of metal-work, than in the group to which we will now proceed to call attention. This most beautiful object was wrought for the Duc de Luynes, whose taste is no less great than his fortune, and whose liberality is, perhaps, greater than either. It constitutes a group of eleven figures, illustrating the union of Ceres, Bacchus, and Venus.

The whole was modelled by M. Jean Feuchères, and entirely executed by a process of repoussé, to the complete exclusion of casting and the other ordinary modes of fabrication. The mechanical difficulty of this process may be imagined, when we state that several of the figures in the group have each required no less than forty small sheets of metal; which it has been necessary to beat into form, to fit, to join together, and to solder up; and that without presenting the appearance of a join, or the slightest distortion of any kind. Even the fingers are, without exception, hollow; and every hand consists, therefore, of from ten to twelve separate pieces.

Undoubtedly the greatest master that ever lived of the peculiar processes involved in the production of this great work of M. Froment-Meurice was Foppa of Milan, better known as Caradosso. Fortunately, Benvenuto Cellini, in his *Tratatto dell' Oreficeria*,* has preserved a full and interesting account of the mode of practice adopted by this artist; and we believe we cannot better close the present article than with the following translation of it:—

"In the goldsmiths' art I know none who surpassed Caradosso da Milano, a goldsmith of the time of the Popes Leo, Adrian, and Clement. This artificer was in the habit of making a most careful model in wax of his subject, and then, filling up the under-cuttings with clay, he cast it in bronze. He then took a plate of gold, of an increased thickness in the centre (though not so much so that he could not easily bend it), and rather wider than his model; having heated and worked it to a convex form he placed it on his bronze model, and hammered it with tools made of birch or wild cherry, gradually causing it to take the forms of the figures on the model; taking care that the gold should not break; using his tools, whether of wood or iron, with great dexterity on either side of the plate, and always striving to render the gold of an equal thickness throughout. The carefulness of Caradosso in this particular was unsurpassed.

"When he had brought his plate to the height of relief he desired, he began forcing the metal with much care between the legs and arms, and behind the heads of the figures, and having brought the parts so well together that the edges joined, he cut away the portions of the plate which remained under the legs, arms, and other parts, and so he did to all the other parts which were detached from the field.

"The work being brought to this point, and being made of the best gold of at least 22 carats (that of 23 being too soft for working, and that of $21\frac{1}{2}$ being too hard and dangerous in uniting), he commenced joining it by the method called hot-soldering, which is done thus:—

"Take a little verdigris in a pure state (not having been previously used for any purpose) of the size of a walnut; add to it a sixth part of sal-ammoniac and as much borax, and having ground them well together, liquefy them in a glazed pipkin with a little very clean water.

"When this composition had become of the consistence of a painting colour, he laid a slight thickness of it upon the before-mentioned junctions, between the arms, &c., of the figures, and upon this verdigris, with his borax-box, he put a little well-ground borax; he then made a fire of fresh charcoal (not previously used) and placed his work in it, arranging the ends of the charcoal so that they should turn towards the parts he wished to join, because the ends breathe or puff out a little: this done, he adjusted some pieces of charcoal over his work in the manner of a grating, taking care, however, that they should not touch it. When the work became the same colour as the fire, he began blowing it skilfully with small bellows, in such a manner that the flames played all around it: should the wind, however, be too strong the flames would open, causing the danger of the melting and spoiling of the work; for this reason he observed the greatest care and watched for the glittering and moving of the first skin or coat of the gold; as soon as it took place he quickly sprinkled it with a brush dipped in water; thus it became joined most excellently without soldering. (This method is not soldering, but is bringing the work into one piece; for such is the virtue of the verdigris accompanied with sal-ammoniac and borax, that it can move merely the outside or first skin of the gold, with which skin the gold is joined in such a manner that the work becomes one entire piece.) He then placed it in strong white vinegar, adding a little salt, and so left it a whole night; the effect of which was, that in the morning he found it whitened and cleaned from the borax: he then filled the whole work with stucco, for the purpose of working it with chisels, which gradually diminished from a large to a small size, and were without a cutting edge, being used for bruising or denting, not for cutting away. The stucco is made of Greek pitch, with a little yellow wax and some well-pounded brick.

"In working the plate, some small holes or cracks will unavoidably occur; in such cases the method of joining above described with verdigris must not be adopted, but a solder must be used, made as follows:—Of fine gold take 6 carats, and of fine silver and copper together $1\frac{1}{2}$ carat: when the gold melts, add the silver and copper. With this solder the holes or cracks must be filled up, and every time a soldering takes place some of this composition should be placed over the holes so closed, so that the subsequent soldering may not cause the previous one to run; all parts of the work being soldered, it should be again placed on the stucco and reworked with care and patience till it be perfected. This is the whole of the method followed by Caradosso."

* Cap. v. p. 56.

F. H. DELAMOTTE, DEL.

M. DIGBY WYATT, DIREXT.

J. MAHONEY, LITH.

SHIELD - PRODUCED IN ELECTROTYPE, BY ELKINGTON & MASON, OF BIRMINGHAM.

LONDON PRINTED AND PUBLISHED JANY 15TH 1853 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CXXXVIII.

A SHIELD IN SILVER, COPIED BY THE ELECTROTYPE PROCESS,

BY ELKINGTON AND MASON, FROM THE ORIGINAL BY VECHTE.

The shield, which forms the subject of the present Plate, has been produced by the beautiful and perfect process of electro-galvanism, which is becoming so valuable a handmaid both to the artist and the manufacturer. The original was one of the early works of the now celebrated French artist, M. Vechte, and we are informed that it was sold by his employers to the King of Prussia as a genuine piece of cinque-cento work. The subject of the basreliefs is a battle of the Amazons, in treating which the artist has availed himself of many of those beautiful compositions which have been handed down to us in the marbles, bronzes, and gems of antiquity. In our notice of Plate LXXIX., we gave some account of the invention and introduction of the electrotype process; and we propose in the present article to give a short detail of its nature, as employed by the principal manufacturers of electro-plated articles; or, as in the present instance, in forming an article altogether by electro-deposit. For the latter purpose, a careful mould is taken of the original object in fine clay, plaster, wax, or gelatine; and the interior face of this is rendered conducting, or, in other words, susceptible of a tenacious metallic deposit, by being brushed over with fine plumbago, or bronze-powder. The mould is then placed in a trough connected with a galvanic battery, and containing a solution of the metal required, which is gradually deposited on the inside, and becomes in its turn an exact copy of the original.*

The arrangements for electro-silvering, or gilding, in some of the large plating manufactories, may be thus briefly described:—The *vat*, or vessel in which the objects to be plated are immersed, is about six feet long, three feet wide, and the same depth; this generally contains from 200 to 250 gallons of the solution; and the silver plates, by means of which the strength of the solution is maintained, are fixed upon light iron frames. At one end of the vat the battery-troughs are placed, generally containing six batteries. Mr. Prime and Messrs. Elkington and Co. have, however, replaced those batteries by powerful magnets, used upon the principle that when the armature of a magnet is set in rapid motion in front of the poles, an electric current is generated. For this purpose steam-power is used, and the electricity evolved is accumulated in large coils of copper wire, which are connected with the plating-trough. Articles to be plated are prepared by being boiled in an alkaline ley, in order to free them from grease. They are then washed and dipped into nitric acid, diluted so that it will only just act upon the metal, in order to remove any oxide from the surface; for this purpose also they should be cleaned with a hard brush and fine sand, and when dried are ready to be plated; a copper wire, by which it is to be suspended in the solution, is attached to each article.

For plating, the article is rapidly immersed in nitric acid, washed through clean water, and immediately immersed in the silver solution, suspended from a wire connected with the source of electricity. It is instantaneously coated with a thin film of silver, and should be taken out after a few seconds and well brushed, in case any particle of foreign matter should still adhere to the surface. After a few hours' immersion, a coating of silver will have been deposited about the thickness of tissue-paper. The cost of depositing silver in this manner is about twopence per ounce. If the battery used be weak, the silver deposited will be soft; but if

* It would be beyond the limits and intentions of these articles to enter into all the details of the electrotyping process, for which we must refer our readers to the numerous popular treatises on the subject by Messrs. Napier, Shaw, Smee, and others.

the battery be as strong as the solution will allow, the deposit will be equal in hardness to rolled or hammered silver; generally speaking, a deposit, which has been effected rapidly, is the most perfect.

In order to secure a perfect adhesion of the deposit in plating large articles, a small portion of quicksilver is dissolved in nitric acid, and a sufficient quantity of this solution is added to water to enable it to give a white silvery tint to a piece of copper when dipped into it; the article is then plunged into this liquid until the surface is white, and then, after being well washed in clean water, it is placed in the plating solution.

The solution of silver commonly used in the process just described consists of cyanide of silver dissolved in cyanide of potassium, and is thus prepared:—A mixture of four parts of nitric acid and one of water is heated in a vessel, and as much metallic silver is gradually added as the fluid will dissolve. When the silver is quite dissolved, the mixture is further diluted with water, and cyanide of potassium is added so long as a white precipitate is formed. This precipitate is the cyanide of silver; and when it has quite settled, the clear liquid is drawn off. The vessel is then again filled with water, which, in its turn, is drawn off as soon as the precipitate has settled. By a repetition of this process the soluble salts are effectually removed, and the precipitate is dissolved in cyanide of potassium and is ready for use.*

For electro-gilding the solution is prepared by dissolving metallic gold in three parts of muriatic acid and one of nitric acid, the resultant of which is chloride of gold. This is digested with calcined magnesia, and the gold is precipitated as an oxide; the oxide is then boiled in strong nitric acid to dissolve any magnesia in union with it; and the oxide being well washed, is dissolved in cyanide of potassium. This method gives a proportion of potash in the solution as an impurity; it is not, however, detrimental to the process. Napier prefers the battery process, which is similar to that described for silver (see Note); having a solution of cyanide of potassium, with a gold positive electrode, and the negative electrode, which may be iron or copper, in a porous vessel, also charged with cyanide of potassium.

For all operations of gilding by the cyanide solution, it must be heated to at least 130° Fahrenheit. The articles to be gilt are cleaned in the way already described for silvering; but are not dipped into nitric acid previously to being put into the gold solution, as the gilding is generally performed upon silver articles. The actual process of gilding is much the same as that of the silvering, and an immersion of three or four minutes is generally sufficient if the solution and battery are in good condition; the former generally contains from one half to an ounce of gold in the gallon; but for small articles a weaker solution will suffice. On removing a gilt article from the solution, it should be of a dark yellow colour, which, when scratched, will yield a rich deep gold. When the battery is too strong and gas is given off from the article, the colour will be black; if the solution is too cold, or the battery weak, the gold will be light-coloured, so that every variety of shade can be obtained.

We cannot conclude our present notice without alluding to the eminent services which the late Mr. Henry Elkington rendered to this already important branch of manufacture. At a time when, in point of art, the manufactures of Birmingham certainly did not deserve great credit, that gentleman commenced his active career, and by his zeal and enterprise greatly tended to raise the standard, not only of the manufacture in which he was specially engaged, but by his example also that of others more or less connected with the arts. Although not himself a practising artist, his correct taste enabled him to direct the artistic talent which he engaged to the production of objects of the highest class of art-manufacture. His loss will, we fear, be seriously felt in the town of which he was so active a citizen.

* Napier, in his "Manual of Electro-Metallurgy," recommends, as the best and least expensive means of obtaining the silver solution, the employment of the battery. "This is effected," he says, "by taking advantage of the principle of the non-transfer of metal in electrolytes. To prepare a silver solution, which is intended to have an ounce of silver to the gallon dissolved in 123 ounces of cyanide of potassium in 100 gallons of water, get one or two flat porous vessels, and place them in this solution to within half an inch of the mouth, and fill them to the same height with the solution; in these porous vessels place small plates of iron or copper, and connect them with the zinc terminal of a battery; in the large solution place a sheet or sheets of silver connected with the copper terminal of the battery. This arrangement being made at night, and the power employed being two of Wollaston's batteries, of five pairs of plates, the zincs seven inches square, it will be found in the morning that there will be dissolved from sixty to eighty ounces of silver from the sheets. The solution is now ready for use; and by observing that the articles to be plated have less surface than the silver plates forming the positive electrode, for the first two days the solution will then have the proper quantity of silver in it.

M DIGBY WYATT, DIREXT

F BEDFORD LITH

PENDANT LAMP BY MATIFAT OF PARIS

LONDON PRINTED AND PUBLISHED JANY 15TH 1853 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CXXXIX.

PENDANT LAMP,

BY MATIFAT OF PARIS.

In Plate XXI. we engraved a beautiful specimen of the manufacturing capability of M. Matifat, and in the remarks accompanying that plate we took occasion to trace the nature of his connexion with Parisian industry. The present subject affords a specimen of the versatility of his talent; and the elegance of its form (for which we understand he was indebted to M. Dieterle) shows how gracefully, under the management of a skilful designer, objects which minister to our ordinary wants may at the same time be made to gratify the requirements of art.

The manufacture of lamps is a very important branch of Parisian industry, the fabrication of the various parts (each of which has its separate workshop) giving employment to a number of hands amounting to upwards of six thousand. We learn from the "Dictionnaire de Commerce," that the number of lamps yearly manufactured in this capital amounts to 350,000 of all kinds, and generally of a low price; a considerable part of the above number being for exportation. Various are the systems into which these are divided. Of that by which the oil is constantly kept at the level of the burner, 200,000 are constructed. Amongst them are the lamps called "*à applique*" and "*à suspension*," and the portable ones called "*économiques*" and "*à tringles.*" Another system is that called "*à niveau defaillant*," used for the astral lamps. The plan invented by the late M. Carcel is, however, the best, without contradiction, amongst the portable lamps. From its high price, however, the consumption is necessarily confined to the richer and less numerous portion of the community. Many manufacturers have tried to render this lamp more perfect, with varying success; and amongst them MM. Gagneau, Gotten, Jeubert, Galibert, Decan, and Grivard'hey, have been honourably mentioned in the various reports of the French Juries.

Before proceeding to notice the successive improvements which have been made in the manufacture of lamps in France, it may be desirable to convey to our readers some idea of the principal defects which required to be remedied; and we can hardly do so in clearer language than that which has been employed by the Baron Dupin.* That distinguished writer observes, that "oil is a material in the composition of which hydrogen and carbon are the principal component parts. When burning, the flame is produced by the hydrogen gas absorbing atmospheric oxygen, to the amount of thirteen eighty-fifths of its own weight; the carbon, however, being less combustible than the oxygen (when the heat is not very intense), is only partially consumed, and flying off with the heated air, quickly falls again, depositing itself on whatever it touches in the form of soot. This was an inconvenience to which all the old lamps were subject, independently of the offensive odour arising from the imperfect combustion of the impure oil with which they were fed." The same author informs us, that "previous to the year 1789 Argand hit upon the happy idea of using circular wicks, to the top of which the oil was raised, either by means of a syphon, or simply by the capillary action of the cotton. The air also was able to rise without interruption up this wick in two currents, one external and the other internal. These two currents were rendered much more rapid by surrounding the wick with a glass chimney. This discovery of Argand's was stolen from him by one of his workmen, named Quinquet, and for a long period

* "Introduction to the Jury Reports on the French Exposition of 1834."

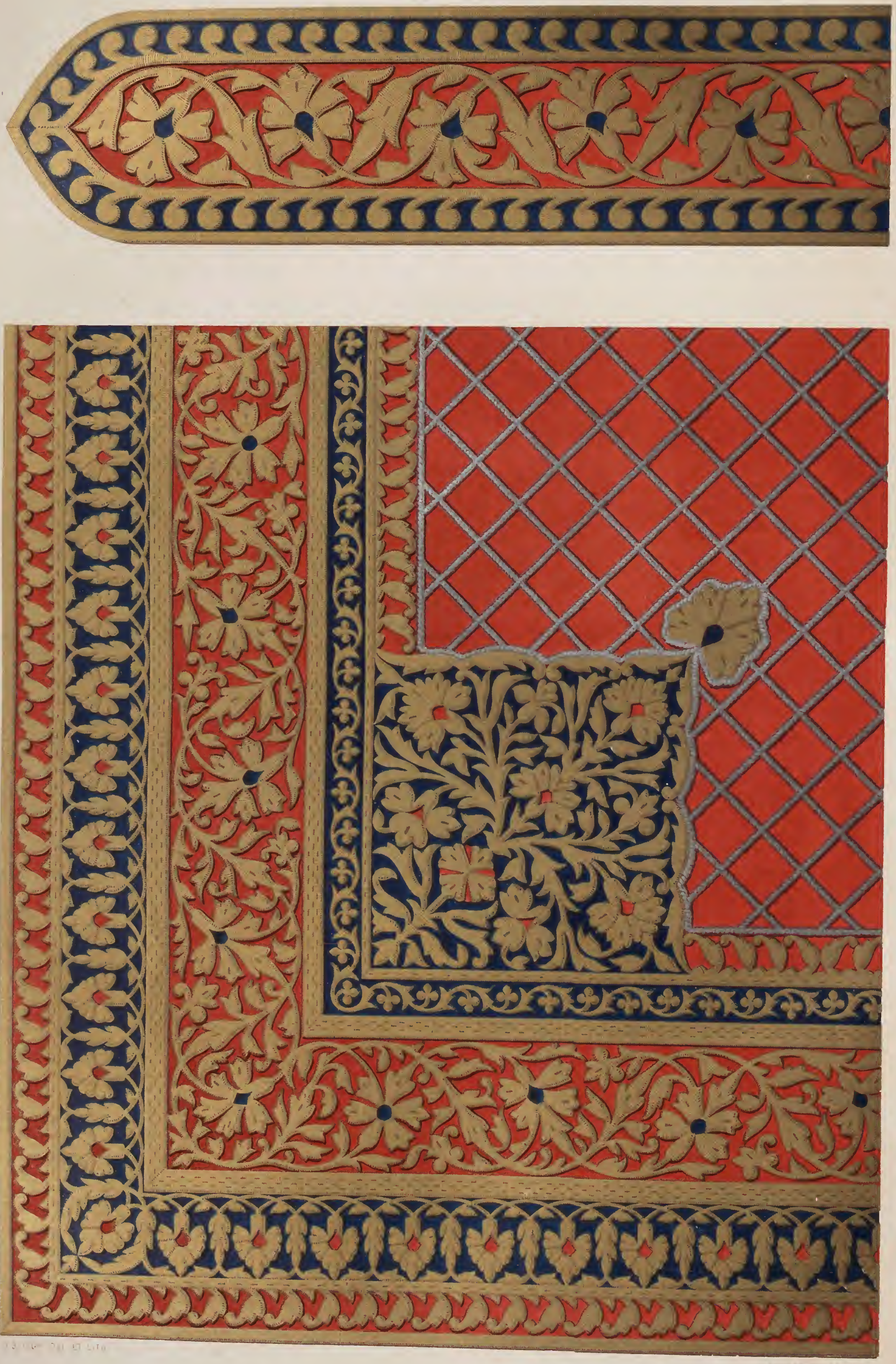
the public honoured with the name of Quinquet, as applied to a lamp, this scandalous theft of Argand's discovery.

"Another improvement remained to be made, viz. that of saving the trouble of continually keeping the oil at the level of the burner. Carcel succeeded in effecting this by pumping the oil up by means of watch-work, hidden within the interior of the lamp. In 1803 and 1806 Carcel received the bronze medal for his valuable invention. The brothers Girard, by an ingenious application of the hydrostatic fountain, arrived at the same result; using a column of oil, or some more or less dense fluid, applied underneath the column engaged in supplying the wick, and acting as an equilibrium to it. A considerable number of lamps on this construction were made and sold at the time of the invention; and were, besides, remarkable for the elegance of their forms.

Since 1806 a great number of improvements have been made, all aiming at the simplification of the mechanism and the improvement of the uninterrupted light, as well as the lowering of the price of lamps, without at the same time diminishing in any degree their elegance. The light of a Carcel or a Girard lamp is so brilliant that the eye cannot bear the glare. For the purpose of obviating this inconvenience, a cylinder of gauze, distended by internal wires, was adopted; but this has, however, long since given place to the globe of ground glass."

Of late years various modifications have been made in the construction of lamps; some of them directed to the principle of using the heat of the flame to warm the oil previous to its arriving at the wick, thereby enabling a less pure, and consequently a less costly, oil to be used. Others have been adapted to sustain combustion by the employment of naphtha and other spirits. Of all the numerous lamps recently invented, none, however, appear to give more general satisfaction than that commonly known as the *modérateur*, the simplicity of the mechanism of which is such as to obviate the only drawback in the use of the Carcel lamp; namely, the difficulty of its management, and repair in case of accident. The modérateur lamp consists of a cylinder containing oil, and a plunger, by the descent of which in the cylinder the oil is forced upwards to the level of the top of the wick. The plunger is forced downwards by a powerful spring, and, on completing its descent, is raised again to its former position by means of a rack and pinion. On its being thus raised a vacuum is formed in the cylinder, and the superfluous oil, which has dripped away from the wick, is readmitted, and again, by the descent of the plunger, driven upwards to maintain combustion. Among the great advantages offered by this lamp is not only economy, but the complete and regular combustion of the oil employed to feed it.

It is much to be regretted that a high style of art has not been generally applied to the manufacture of table-lamps. In the old Exhibitions at the Society of Arts, the ugliness of the pillar-lamps was most remarkable. Doric columns with caps and bases were among the most ornamental forms; and occasionally Gothic crosses—complete in everything except the cross—were made to do duty in the same manner. In France, some of the beautiful reductions from the antique, by M. Collas, have been so arranged as to enclose the works of both Carcel and modérateur lamps, and the graceful forms of Pompeii and Herculaneum have been successfully adapted to the same purpose. The pendant lamps of the middle ages were often exceedingly beautiful. The "*coronæ lucis*," existing, as described by Ciampini, from the age of Constantine, in the old basilicas of Italy, must have been very graceful; and the curious specimen which still hangs in the cathedral at Aix-la-Chapelle affords a corroboration of the justice of his praise.



SPECIMEN OF INDIAN BULLION EMBROIDERY

PLATE CXL.

INDIAN BULLION EMBROIDERY.

In presenting to our readers another exquisite specimen of the arts of modern India, we propose to commence a brief sketch of the history of the commerce of that country with the western nations of the world, from the earliest periods; continuing the subject to the present time, in connexion with our illustrations of other Indian productions.

As early as the days of the prophet Moses (1571 to 1451 B.C.) the productions of India were probably known beyond the limits of that country; for it is believed that the spices borne by the Ishmaelites, mentioned in Genesis (ch. xxxvii.) must have been derived from that source: and in the Book of Exodus we find that "onycha, cassia, and cinnamon," were used in the services of the sanctuary. The Hymns of the Vedas were composed at least 1200 or 1300 years B.C., and they disclose a state of civilisation which proves that the Hindoos were then distinguished as a manufacturing, a maritime, and a mercantile people. About 1000 years B.C. Solomon not only traded with Tyre and Sidon, but, in conjunction with the Phœnicians, sent fleets to Ophir and Tharshish, which brought back "ivory, apes, peacocks, cinnamon, cassia, nard, and calamus:" most of which are peculiarly Indian products: and in his days the fragrant aloe-wood, which is only found in trans-Gangetic India and Cochin China, was employed by the Jews to perfume their garments and apartments. The Ramayana, and other Hindoo epics, written long anterior to the Christian era, contain references to gold and precious stones, bracelets, and necklaces, and costly garments; as well as to the use of silk and woollen stuffs, of such exceeding value that Heeren supposes the latter to have been the shawls of Cashmere.

The southern portion of Arabia possessed, from the earliest periods, a monopoly of the external trade of India. Ophir was probably on the shores of that country, constituting an emporium of the joint African and Indian trade; it was, doubtless, through the Arabs that the ancient Egyptians procured the Indian spices with which, as Diodorus relates, they embalmed their dead. The communication from India to Babylon, in the time of the Assyrian empire, was probably direct through Persia; and the discoveries of Layard afford abundant evidence of the knowledge of Indian animals, &c., possessed by the people of Nineveh. The apes represented on the Nimroud sculptures, and more especially the elephant upon the obelisk from that city, are now familiar proofs of this fact.

The Phœnicians, like the Egyptians, derived the products of India from the Arabs, by whom they were conveyed to Petra, and there purchased by the Phœnician merchants. The prophet Ezekiel, whose writings date from the year 598 B.C., has frequent allusions to the trade of this nation in foreign objects; and the inference is obvious, not only that many of these were of Indian origin, but that they were supplied by way of Arabia. He especially alludes to "coloured cloths and rich apparel," and it may be reasonably supposed that the fine cotton goods of India were even then an article of commerce.

Heeren adduces many learned arguments to prove, that as early as the time of the Persian empire the produce of Ceylon found its way to the markets of Arabia, Babylonia, and Persia, and that the same island continued for upwards of two thousand years to be the common emporium of all southern commerce—from the eastern shores of Africa to China. About the year 521 B.C., Darius Hystaspes is said to have subdued the natives of a portion of India, and to have formed it into a satrapy of his kingdom. The tribute exacted from the conquered people amounted to three hundred and sixty talents, and it is especially recorded to have been paid in gold. The Persian dominions in India were probably, however, limited to the western side of the Indus.

In the earliest history of Greece we meet with evidences that the productions of India were known in that country. Hercules and Bacchus are both Hindoo deities; and many of the Greek names for Indian articles are derived from the Sanscrit. Among these may be mentioned tin,—a metal which the Greeks may be supposed to have obtained from India, through the agency of the Phœnicians, with at least as much probability as from Britain. Herodotus (484–408 B.C.) had heard of the bamboo and the cotton plant; and Ctesias, a Greek physician, who resided at the court of Artaxerxes (401 B.C.), mentions the customs and productions of India, especially alluding to a traffic in female slaves for the harem. The Greeks, however, first obtained a correct idea of the western parts of India, with some knowledge of the country beyond the Indus, from the expedition of Alexander the Great, who subdued Porus about the year 326 B.C. The reports of his admiral, Nearchus, whom he first despatched to explore the coast of the Indian Ocean as far as the Persian Gulf, led to this important enterprise; and in the writings of Megasthenes and Daimacus, the companions of Alexander, we possess some interesting references to the produce of India,—including, besides gold, jewels, and rich garments, allusions to the use of ivory ornaments, and to the pearl fisheries of the East. Among the gifts of Porus to the Conqueror were thirty pounds of steel; and it has been well observed, that the facility with which Alexander's army proceeded through the country, together with the early and frequent use of chariots, proves the existence of good and level roads.

After the death of Alexander, the kingdom of the Prasii, on the banks of the Ganges, became known to his successors by a military campaign; and a considerable part of Northern India appears to have been included in the Greek kingdom of Bactria, which existed from the year 255 to 134 B.C.

From the foundation of Alexandria the western trade of India was almost exclusively carried on through the merchants of that city, who obtained their goods from the Arabs. Thus all the treasures of the East became familiar to the Romans. Juvenal, Petronius, and many other classic authors, have frequent references to the productions of India (and, indeed, the term "Indica" was employed to express all that was most elaborate and rich in costume). Pliny informs us that Rome was drained annually of at least fifty millions of sesterces (upwards of 400,000*l.*) for the purchase of Indian commodities; and, probably with some degree of exaggeration, he adds, that their cost was increased a hundredfold by the expense of transit. He especially alludes to woven fabrics of silk, of cotton, and of both materials combined;* to iron, skins, sugar, indigo, lac, lign aloes, musk, spices, perfumes, and precious stones. The transparent garments often mentioned by Roman authors were, probably, the fine muslins of India.

In the second century we meet with a far more minute and accurate account of Indian commerce than at any earlier period, in the "Periplus of the Erythrian Sea," by Arrian, a merchant and mariner of Alexandria. It is, indeed, impossible to overrate the value and importance of this interesting nautical journal, describing as it does, from actual observation, the coast from the Red Sea to the western parts of India, and furnishing from authentic information accounts of the province of Bengal, and many of the central and southern parts of Hindostan. Arrian distinctly mentions "the Gangetic muslins, which are the finest manufactures of the sort," and which were obtained from a certain mart on the banks of the Ganges.† He further describes as articles of trade, coarse, middle, and fine cloths, both plain and striped; coloured shawls and sashes; coarse and fine purple goods; pieces of gold embroidery; spun silk and furs from Serica; pearls, diamonds, rubies, onyx, perfumes, and spices; lac, indigo, sugar, steel, &c.; and it is reasonably inferred by Heeren that all these objects, though not before minutely described, had long been exported by the Hindoos. It appears from the statements of Arrian, that the merchandise of Bengal was conveyed in native vessels to different places on the eastern side of the Indian peninsula, and to Ceylon, as well as to the ports on the western coast. From the latter, in the time of the Ptolemies, and during the Roman government of Egypt, it was transported direct to Berenice, or to Myos Hormos (near the modern Cosseir), on the Red Sea. From these places caravans proceeded to Coptos (now Kenné), on the Nile, down which river it was conveyed to Alexandria, and thence distributed over Europe.

* Silk (or "Sericum," from the country of the Seres)—the coarse, indigenous silk of Assam and Eastern India—was imported into Greece and Rome. The Hindoos obtained silk from Thibet and China at a very early period.

† Various authors have sought to identify this place with the modern cities of Gour, Rajmahal, Hoogly, and Duliapore; but Mr. Taylor, in his interesting and learned "*Account of the Cotton Manufacture of Dacca*," contends that it was identical with Bickrampore, in the district of Dacca, where the finest muslins are still produced. This place, he observes, "is regarded by the Hindoos as the site of the ancient capital of the kingdom of Bongoz (Bengal), or of the Gangaridæ of Ptolemy. A great annual fair is still held there."

F. SMALLFIELD. DEL.

M. DIGBY. ANAGLYPTO REXT.

F. BEDFORD. LITH.

PAINTED ARABESQUE BY J.G. CRACE WITH DECORATIONS IN COMPOSITION
BY JACKSON & SONS OF LONDON

LONDON. PRINTED AND PUBLISHED FEBY 1ST 1856. BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CXLI.

PAINTED ARABESQUE,

BY J. G. CRACE;

WITH DECORATION IN COMPOSITION BY JACKSON AND SONS, OF LONDON.

In offering, by way of illustration to the present plate, a few remarks on the successive changes which have led to the present condition of the art of decoration in England, we are attracted by a double interest —the importance of the subject in its general aspect,—and its peculiar connexion with the career of the gentlemen by whom the productions we engrave have been executed.

The style of interior decoration most usual in the present day unquestionably derives its origin, rather from the peculiarities of Italian practice than from those of Gothic architecture; and it will be unnecessary, therefore, to refer to those periods in which the latter style obtained ascendancy. So early as the reign of Henry VII. certain classical forms had intruded themselves into English art, and these, under his successor, became of comparatively frequent occurrence. Any scientific arrangement of such details was, however, scarcely recognised until the reign of Queen Elizabeth, when the mouldings and proportions of the Roman orders were so much the subject of general admiration that fashion would scarcely tolerate any reminiscence of the forms which had so long characterised the Gothic styles.

The example which Italy and France had set in adopting a more regular distribution of parts and a more academic treatment of façades, was speedily followed in England, and free translations of Lescot and Vignola were not unsuccessfully carried out by John Thorpe, Robert and Bernard Adams, Lawrence Bradshaw, Gerard Christmas, Bernard Jansen, and other artists of the period. They, indeed, in the numerous mansions which they erected, displayed a considerable mastery over the technical details of decorative art. Not only was the woodwork elaborately carved with quaint repetitions of classical details, but the ceilings were executed in handwork stucco, with great freedom and in many ingenious forms, and the walls were also frequently painted in heraldic devices and rude arabesques, displaying at least a sympathy with the more perfect works of Italian origin, if not the ability to equal them.

As the English artists of the period referred to derived their knowledge of the details of the classic styles principally from the engravings of the Italian masters and of the French and Flemish *petits-maîtres*, considerable uncertainty existed as to the scale to which those details were most applicable. Hence the frequent reproduction, in a cabinet form, of parts suited only for colossal dimensions. As, however, the English became acquainted by foreign travel with the great works upon the Continent, so their sense of the capabilities of the classic styles became enlarged and corrected. The travels of John Shute, who, under the protection of Dudley, duke of Northumberland, visited Italy in the reign of Queen Elizabeth; those of Robert Adams, at a somewhat subsequent period; and those of Inigo Jones, at the commencement of the seventeenth century, tended in a high degree to promote a correct knowledge of the features which are most important to external architecture, and of those superficial enrichments which are properly applicable to internal decoration.

In the Banquetting-house at Whitehall, the last-mentioned artist displayed his grandest conceptions of palatial magnificence; exhibiting his sympathy with that phase of art which in Italy covered the entire surfaces of important interiors with pictures by Correggio, Guido, Domenichino, and the Caracci. Magnificence was, indeed, essentially the characteristic of Inigo Jones; and we are probably indebted to him for that profusion

of technical skill which, during the whole of the succeeding century, was lavished upon the architraves, cornices, mouldings, &c. of doors and windows, throughout all the houses erected for our nobility.

The designs made by Sir C. Wren for the decoration of St. Paul's Cathedral are clearly based upon the study of contemporary works in Italy; for we find in them the same sprawling exuberance into which the followers of the Caracci ultimately degenerated: and whether in the works of Sir James Thornhill, of Verrio, or of Laguerre, we are alike reminded of Mantua, of Parma, and of Bologna. As may be naturally supposed, the styles of most of the successors of Jones and Wren strongly partook of the characteristics of their great prototypes; and the works of Webb, Hawksmoor, Gibbs, Vanbrugh, Aldrich, and Colin Campbell, attest that those architects had studied only the exterior forms of architecture, without perceiving in what degree they should be modified for the purpose of internal adornment.

At the commencement of the eighteenth century a new element was introduced in decoration by William Kent, who, by his early education as a painter, and his comparative ignorance of the details of formative art, was induced to confine himself, in his designs for interiors, mainly to surface decoration; and hence, perhaps unconsciously, became one of the earliest reformers of the heavy proportions of his predecessors. His great facilities, however, as a rapid and skilful draftsman, tempted him to a too prodigal use of enrichment. The character of Kent's ornamentation assimilated to a great extent with that prevalent in France at the same period; and Lepautre and Lafage supplied his prolific imagination with types for its material embodiment. From scarcely less questionable sources did Robert Adam devise those thin lines and attenuated forms which in the buildings of the Adelphi; at Luton Park, Bedfordshire; at Caen Wood, Hampstead, and in similar edifices, reproduced the most debased period of Roman art,—that of Diocletian.

The extravagancies of the two last-named artists were, however, admirably checked by the advent of Stuart and Revett, whose publication in the year 1762 of the well-known "Antiquities of Athens," speedily led to a purification of public taste. Sir William Chambers, although more especially a student of Italian models, derived much benefit from this improved sympathy with true beauty in art; and exhibited as much talent in the enrichment and decoration of his interiors, as in the admirable proportions of his exteriors. Unfortunately, he rarely superadded colour to the former; but his treatment of ornaments in low relief, and the setting out of his panelling, are invariably based upon correct principles, and admirably adapted to harmonise with the richest styles of internal finishing.

The practical execution of the decorations designed by several of the last-named architects was entrusted to a class of men of considerable intelligence; and among them few were more remarkable than the immediate ancestors of Mr. Crace. When, under the direction of Mr. Holland,* the Prince of Wales determined on carrying out extensive decorations at Carlton House, the conduct of the works was entrusted to Mr. Crace's grandfather; and the same artist laboured with great success at Lord Willoughby's in Piccadilly, the Marquis of Abercorn's at Stanmore, the Old Pantheon, and other theatres and mansions. Mr. Crace's father executed numerous important decorative works at Brighton, Windsor Castle, Carlton House, &c. under the superintendence of Sir Jeffrey Wyatville, Mr. Nash, Sir John Soane, and other celebrated architects. Mr. John Gregory Crace has himself devoted considerable personal study to the history and practice of his art, with a degree of success which is attested not only by the works he has executed, but by his contributions to the transactions of the scientific societies of the metropolis. Some of his principal works in the Italian style have been executed for the Duke of Devonshire at Chatsworth, Devonshire House, and Lismore Castle; and for the Marquis of Breadalbane at Taymouth Castle; whilst his competency for the successful treatment of mediæval art is amply shown by his connexion during many years with Sir Charles Barry and the late Mr. Pugin, at the Houses of Parliament and elsewhere.

In the application of composition and papier mâché to decorative purposes, Messrs. Jackson and Sons occupy a no less creditable position than that of Mr. Crace in general decoration. For very many years they have been extensively engaged in fitting up the principal theatres, public rooms, and mansions of the country; and the personal attainments of the present principal of the firm may be regarded as no less remarkable than the energy and success with which they have been applied to the practical purposes of his art.

* This gentleman, who, though by no means faultless as an architect, was animated by a true love of his art, earnestly sought to restore a taste for arabesque decoration; and, when engaged on the works in Carlton House, he not only employed the talents of Rebecca, and other English artists of repute, but obtained the consent of His Majesty George the Fourth to the employment of many artists of distinction from the Continent. Among these were MM. Boileau, Labrierre, Champerny, and Turnis, who imparted their skill to numerous pupils of great ability: amongst the latter to Mr. Jones, who unfortunately failed to receive that encouragement which his talents deserved.

M. DIGBY WYATT, DIRECT.

F. BEDFORD LITH.

ALTAR AND REREDOS DESIGNED BY THE LATE A.W. PUGIN,
CARVED IN STONE BY MYERS OF LONDON, AND FITTED-UP
BY HARDMAN OF BIRMINGHAM.

LONDON, PRINTED AND PUBLISHED FEBY 1ST 1853 BY DAY & SON, LITHOGRAPHERS TO THE QUEEN.

PLATE CXLII.

ALTAR AND REREDOS,

DESIGNED BY THE LATE A. W. PUGIN; CARVED IN STONE BY MYERS OF LONDON; AND FITTED UP BY HARDMAN OF BIRMINGHAM.

We have had the satisfaction, in the course of the present work, to advert, on several occasions, to the exquisite designs of the late Mr. Pugin for the decoration of buildings, executed in the various styles of the middle ages. The death of an artist so distinguished by genius, enthusiasm, and energy, must at any time and under any circumstances have been regarded as a loss to the arts of his country; but occurring as it did in the maturity of his career, and under the recent affliction of mental disease, produced by the too active exercise of his rare talents, that event excited, throughout the world of literature and art, a deep and more than ordinarily painful sensation.

In referring, for the last time, to the productions of this gifted artist, we shall endeavour to place on permanent record the leading particulars of his public life; regretting at the same time that our notice must be limited to little more than an enumeration of his literary publications, and some of his most important architectural designs.* Augustus Northmore Welby Pugin was born in London, in the year 1811. His father, Augustus Pugin, was a native of France, and took up his residence in England at the time of the first Revolution. Although for some time in the office of the late John Nash, he is less known as an architect than by his admirable illustrations of Gothic architecture. In most of these he was associated with Mr. Britton, whose valuable works on that subject tended greatly to that general knowledge of the details of national art which is now so widely spread. This association induced the elder Pugin, in the year 1820, to commence a series of "Specimens of Gothic Architecture." In the "Architectural Antiquities of Normandy" (1827), the same parties were connected with Messrs. John and Henry Le Keux, the great masters of architectural engraving; and among the other works of Mr. Pugin, senior, we may mention "Illustrations of Gothic Ornaments" (1831), and "Examples of Gothic Architecture" (1830); the latter carried on, after his decease, by the subject of our memoir, and completed by Mr. T. L. Walker.

Mr. Welby Pugin, from assisting his father in the preparation of these works, acquired at a very early age that facility of drawing which distinguished him through life. Although for some time a private pupil at Christ's Hospital, his early life was somewhat unsettled and wandering. He, however, accompanied his father in his travels, and thus acquired an ardent love for the beauties of mediæval church architecture. When but a young man he exercised his pencil for nearly two years in assisting Messrs. Grieve, the able artists of Her Majesty's and Covent Garden Theatres, in the preparation of their architectural scenery. For Messrs. Morel and Seddon he designed and made working drawings for the furniture required for Windsor Castle; and for Messrs. Rundell and Bridge he undertook a similar task in connexion with some plate in the mediæval style: but of these works he often afterwards expressed very unfavourable opinions. We are told by Mr. Bury that he embarked at an early age in the manufacture of Gothic furniture and similar works, but that undertaking proved unsuccessful.

On the death of his parents, in the year 1833, Mr. Pugin very soon displayed his extraordinary powers, both as an architect and as an author. We may enumerate his publications in the order of their date as

* We have to express our obligations to a brief memoir of Mr. Pugin by his old friend and fellow-pupil, Mr. Talbot Bury, published in the "Builder" of the 25th of September last, with some additional remarks by the Editor of that useful periodical.

follows:—In 1835, "Designs for Gothic Furniture," drawn and etched by himself,—the success of which led, in the same year, to his "Designs for Gothic Iron Work," in which he adopted that which became his favourite motto, *En avant*. In the next year he produced "Designs for Gold and Silver Work," "Examples of Ancient Timber Houses," and a volume which could not fail to excite the utmost attention from its fearless originality,—"Contrasts; or, a Parallel between the noble Edifices of the Fourteenth and Fifteenth Centuries, and similar Buildings of the present day, showing the present decay of taste." Engaged from this time in the practice of his profession, Mr. Pugin did not produce any important literary work till the year 1841, when his valuable publication on "The True Principles of Pointed, or Christian Architecture," made its appearance. In May 1841, and February 1842, Mr. Pugin contributed anonymously to the "Dublin Review" two able articles "On the Present State of Ecclesiastical Architecture in England;" and these were reprinted as a separate work in 1843. In 1843 he published "An Apology for the Revival of Christian Architecture;" in 1844, another valuable work, entitled "A Glossary of Ecclesiastical Ornament;" and in 1849, "A Series of Thirty-one Designs for Floriated Ornament." It is difficult to overrate the labour, ability, and characteristic novelty of these various works. They do not, however, comprise the whole of his literary efforts; for besides his latest work, in 1851, "On Chancel Screens and Rood Lofts, their Antiquity and Symbolic Signification," he was constantly engaged in the preparation of pamphlets, and in correspondence on matters connected with his favourite study.

About the year 1834 he avowed himself a convert to that faith, to a study of the external splendours of which his energies had long been dedicated; and from that time he actively embarked as an architect in designing edifices devoted to the rites of his religion.* His first church, Mr. Bury states, was that of St. Mary, at Derby. He then executed a chapel at Reading; St. Chad's Church, Birmingham, with nunnery, &c. adjoining; and amongst the many buildings which he designed and superintended we may mention four churches at Liverpool; others at Manchester, Kenilworth, Oxford, Cambridge, Stockton-on-Tees, Newcastle-on-Tyne, Preston, Rugby, Northampton, Stoke-upon-Trent, Woolwich, Hammersmith, Fulham, Nottingham, and many other towns; colleges at Radcliffe, Rugby, and Maynooth; the cathedrals of Killarney, Enniscorthy, and St. George's, Southwark; and especially the rich and magnificent church at Cheadle in Staffordshire, erected for his patron, the Earl of Shrewsbury. His valuable assistance to Sir Charles Barry, in carrying out the details of the New Palace of Westminster, is too well known to need more than a passing notice; whilst the Mediæval Court, in the Exhibition of All Nations, presented a striking memorial of his taste and skill.

At Ramsgate Mr. Pugin erected, at his own expense, a church dedicated to St. Augustine, with a school and other buildings attached; and in an adjacent house, forming part of the general group, he resided till the early part of the present year. Then it was that the grief of his friends and the public was excited by the intelligence that his mind had given way; and although he rallied sufficiently to be removed to his home again from the asylum in which he had been placed, he died in an epileptic fit on Tuesday, the 14th of September, 1852. His remains were interred in his own church on the 21st. The reader will find some interesting comments on the personal characteristics of Mr. Pugin in the articles to which we have already referred. Our limits will only enable us to advert to the exertions of the three gentlemen whom we have last mentioned in conjunction with the deceased architect. Mr. Myers has been most successfully connected for many years with all Mr. Pugin's larger works, of the elaborate nature of the majority of which our present engraving may convey some slight idea. We have already illustrated the productions of Mr. Crace and Mr. Hardman; and in reference to the latter we may state, that his connexion with Mr. Pugin commenced about the year 1834, on the occasion of the last-named gentleman being consulted in reference to the chapel of St. Mary's College, at Oscot, near Birmingham. The merit of some revivals of mediæval brass-work by Mr. Hardman, and the congeniality of their tastes, immediately brought them into close association. The difficulty of procuring metal-work in accordance with the buildings designed by Mr. Pugin led to the formation, in 1838, of the establishment of Messrs. John Hardman and Co., in Great Charles Street, Birmingham; and after some comparative failures, and much pains bestowed in the instruction of the workmen, they have succeeded in producing works which rival the best productions of the Middle Ages. Of these, amongst many others, we may advert (not as the best, but as a familiar example) to the brass gates, railings, and candelabra in the House of Lords. Messrs. Hardman have added embroidery and stained glass to their works in metal with the greatest success.

* Mr. George Godwin reminds us that Mr. Pugin's father was a Roman Catholic, his mother a Protestant, "and that his early predilections were, at all events, divided."

SIDEBOARD CARVED IN OAK BY JACKSON & GRAHAM OF LONDON

PLATE CXLIII.

SIDEBOARD CARVED IN OAK,

BY JACKSON AND GRAHAM OF LONDON.

The piece of furniture represented in the accompanying plate is a production which does credit both to the firm at whose establishment it was manufactured, and to the various artificers actually engaged upon its execution; among whom we have much pleasure in mentioning the name of the designer—Mr. Eugène Prignot. The style of the work is a happy adaptation of the English revival of antique art most generally known under the name of Elizabethan, and there is much taste displayed both in the selection and carrying out of the various ornamental details. The front panels of the lower portion are enriched with trophies of the sports of hunting and fishing; in those at the ends, the implements connected with husbandry and the vintage are represented. The figures of children, introduced as supporters at the angles, are intended to impersonate those different sports and the branches of industry emblematised by the subjects in the panels. Thus we may recognise among them the sportsman, the fisherman, the reaper, and the wine-presser. The heads of animals carved in the frieze have been also introduced in allusion to the same subjects.

From some particulars obligingly furnished by Messrs. Jackson and Graham, we learn that the material of this sideboard—English oak—was grown in the county of Hereford, a district remarkable for producing a superior quality of this wood; of which the object engraved certainly presented a most favourable specimen. The modelling and carving were entirely executed by workmen in the employ of the firm, on their own premises; and the work altogether occupied about six months.

We shall now proceed with our historical sketch of English furniture, in continuation of our last notice (Plate CXXV.), in which we described the various articles of furniture chiefly used in England during the fifteenth century; briefly noticing the general arrangements which obtained at that period.

The walls of the best rooms were hung with arras, or painted cloth, or in the latter part of the century were wainscotted. The term arras was derived from the town of that name, whence were exported vast quantities of tapestry. The earlier specimens of this fabric have simply some badge, flower, or device, repeated as a diaper. As the art of working such hangings progressed, however, complete histories were made to decorate the walls of the principal apartments in noble mansions: the most common subject being that of the siege of Troy, treated in a style somewhat similar to that of the tapestry formerly in the Painted Chamber at Westminster. Such precious hangings, as we may well imagine, were removed with the other furniture, whenever the owner journeyed from one house to another; and the glass windows were generally made to perform the same migration. Over the seat of the king, or lord, was suspended a species of canopy, consisting of a piece of rich stuff, partly hanging from the ceiling and partly occupying the back of his seat: this was called the cloth of estate, and was often decorated with jewels, "semé" with escutcheons, or the cognizances of the family, or richly embroidered with legends, powderings, or other suitable devices. Occasionally it bore the name of "baldequin," or "baudekin," from the Italian "baldachino," or, more probably, from the stuff of the same name which frequently constituted the material of the cloth of estate, and was so called from Baldacca, or Babalon, in Egypt, where it was first made.

A hall of the fifteenth century had but little furniture. On the dais stood the lord's table, with the

cloth of estate over his seat; the rest of the guests were accommodated with benches. Two other tables, with trestles at right angles to the principal one, occupied the rest of the apartment. A fire burned in the middle of the apartment, and the smoke made its exit by the louvre, or "fumorel," in the roof. A "standing" cupboard, garnished with "vaisselle," or, in less rich dwellings, with pewter dishes, commonly occupied the recess of the great oriel, and completed the arrangement.

The parlour generally contained the best furniture possessed by the owner; the walls were covered with tapestry, and frequently there were seats all round the room. The windows were not always glazed; and in such a case the lower parts were occupied by wooden lattice-work, while the upper portion remained open to the air. A small mirror, generally convex, was attached to the tapestry in some conspicuous situation. A large bench stood before the fireplace; and occasionally a clock, not unlike the Dutch ones of our own day, occupied one corner of the room. A lobby, or screen of wainscoat, kept off the draught, and may frequently be seen represented in the illuminations of the period. Occasionally the whole room was wainscotted, reminding us of the earlier "lambruscation" mentioned in the liberate rolls of Henry III. Several apartments leading to the Jerusalem Chamber in Westminster Abbey remain in their original state, both as regards the woodwork and the glazing; the latter consisting of sundry coats of arms in a ground of white quarries. The whole effect is rather dull and monotonous, and must have been vastly inferior to that of those places in which tapestry was employed.

The other rooms were more or less splendidly furnished according to their destination, and it would appear that towards the end of the century linen was in common use, since even the servants very often enjoyed the luxury of sleeping in sheets.

With regard to the acquisition of objects calculated to appeal to the intellect, such as books and pictures, but little had been done in the two centuries preceding the fifteenth; although in earlier ages both the rich ecclesiastics, and occasionally the higher nobles, had shown considerable sympathy with the polite arts. The influence of a few men of elegant pursuits, such as the celebrated Lord Hastings, tended, however, to revive a taste for the accumulation of such possessions, and induced King Edward IV. to exert himself in the collection of a splendid library, by getting MSS. illuminated at Bruges and elsewhere, under the inspection of Louis de Grutheuse, the possessor of the most gorgeous series of such works of the period. The highly valuable and interesting Inventory of the possessions of Henry VII., now preserved in the Record Office at Carlton Ride, throws much light on the precise nature of those "properties" by means of which the stage effect of royalty was maintained at this period. Furniture, hangings, apparel, books, pictures, and miscellaneous effects were collected by this avaricious old sovereign; and there can be no doubt that the collections of few of the contemporary European monarchs could rival that of which the above-mentioned inventory presents us so curious a picture. Henry VIII. went, however, far beyond his predecessors; and not only patronised Jean de Mabuse and Holbein, but had a picture-gallery of his own, which afterwards formed the nucleus of that of Charles I. In the inventory none of the artists names are mentioned, and the pictures are divided into two sorts,—viz. tables (painted on panels), and stained cloths (canvass pictures): the subjects consisted of his patron-saints or avouteries, portraits of himself, and caricatures of the Pope.

PLATE CXLIV.

SWISS EMBROIDERY.

The females of Switzerland have long been famous for their dexterity in those arts of needlework and embroidery which have been practised, more or less extensively, in all civilised countries, ancient and modern; and the introduction into this work of the specimen which we now engrave, which well maintains the national reputation in this agreeable art, will give us occasion to record a few particulars of the manner in which it is exercised in the country we have mentioned.

Although the various branches of the cotton-manufacture—from the spinning of the yarn to the production of the exquisite muslins and laces upon which the embroiderer has to work—are, in some of the principal towns of Switzerland, conducted in large establishments, the processes of spinning, of weaving, and of lace-making, are far more generally carried on in the humble dwellings of the work-people; and in rural districts, the labours of the spindle and the loom succeed in the evening those of the field during the day, and in the winter almost entirely supersede the latter. Large quantities of the finer kinds of cotton-twist are, however, imported from this country; for the peculiar inland situation of Switzerland renders the supply of raw cotton so costly, that it has been calculated that a bale of cotton may be conveyed from Charleston, United States, to Manchester, at a less cost than from Genoa, or the Dutch ports, to Switzerland.

We need not, on this occasion, dwell upon the subject of the general textile manufactures of the Swiss, but we may remind our readers of the brilliancy and durability of their dyes, and the taste with which they employ colour in the decoration of cotton goods. The printing of these objects is carried on extensively in Neufchâtel, and the admirable results obtained are by some writers ascribed to the peculiar quality of the water used.

The manufacture of lace was carried on with much success at Geneva, as early as the sixteenth century; but, whilst it employs numerous females in different parts of the country, the chief seat of this trade may be said to be the town of Neufchâtel, where it was introduced by the refugees expelled from France on the revocation of the Edict of Nantes. In the year 1834, upwards of 4000 persons were employed in lace-making in the neighbourhood referred to; and the numbers had then seriously decreased, owing to the competition with machine-made lace. According to their skill and assiduity, the women thus employed earn from one to three francs per day.*

The art of the *embroiderer* is chiefly devoted to the elaborate decoration of lace and muslin; and we learn from a valuable document by M. Zellweger, of Trogen, appended to Dr. Bowring's "Report," that "the merchants who deal in embroidered goods purchase plain muslins and choose the patterns, or sketch them themselves; after which they have them engraved by the best artists. The pattern is then printed or stamped upon the muslin, and then handed over to the embroiderer to be completed. Each individual only performs a certain part, so that the piece of embroidery, where there are three or four different figures or patterns, passes through the hands of as many work-people. This work is generally executed by women, or young lads, and their earnings, on an average, are about 18 kreutzers (about $6\frac{1}{2}d.$) a-day.

* "Report on the Commerce and Manufactures of Switzerland, by John Bowring, LL.D. 1836. Presented to Parliament by command of Her Majesty."

With these preliminary remarks we may proceed to quote the facts and opinions put on record by the Jurors of Class XIX. of the Great Exhibition, in reference to the class of productions now under our consideration:—"Switzerland has largely availed herself of the benefits held out by this Exhibition, and well sustained her long-enjoyed celebrity for both lace and muslin embroidery of every description. It will be seen by the numerous articles shown, displaying at once cultivated taste and excellence of work, combined with cheapness and utility, that her motto is Progression; and, as stated by one of her manufacturers, 'under the beneficial effects of free trade the Swiss sewed-muslin trade has made enormous progress.' From the variety of articles manufactured, the excellence of the work, and the beauty of the design, the manufacturers send their productions to all parts of the globe, and find ready sale, even where they are met by hostile tariffs. The hands available for needlework in Switzerland are no longer sufficient to satisfy the demand, and the Swiss manufacturers are employing large numbers in the eastern provinces of Austria and the southern provinces of the Duchy of Baden.

"It would be difficult to state the exact numbers employed in this branch of manufacture, the hands not being in factories or large rooms, as is frequently the case in this country; the pattern being stamped or printed on the muslin or net, and given out to workers at their own homes, so that many do their household work and fill up their time with this embroidery: there cannot, however, be less than 40,000 earning their living by this branch of industry. A good steady hand can earn in ordinary times 1*s.* per day; second-class hands, down to children, range from 3*d.* to 8*d.* per day. The needlewomen of Appenzell (Rhodes intérieures) are noted as the most skilful workers in sewed muslin, &c., hence the finest and most difficult work is done there, and the highest wages are received.

"Those articles in which cheapness is the recommendation are done by the needlewomen of St. Gall, Vorarlburg, and Baden. It is estimated that 100,000 pairs of curtains alone are annually imported into Great Britain, at prices varying from 3*s.* to 100*s.* per pair, paying a duty of fifteen per cent. The Swiss manufacturers do not regard England as their best customer; they export largely to North and South America,* Germany, Italy, Spain, and other southern countries. The trade is steadily progressing, and is principally conducted by the manufacturers of the Canton of Appenzell, a few only residing at St. Gall, where they have a market on Wednesdays and Saturdays for the transaction of business."

We may here observe, that it is only by combining such work as we have described with their ordinary domestic occupations, that the Swiss are enabled to reduce the rate of wages to that small amount which gives to their productions the merit of extreme cheapness, as well as excellence,—an observation which applies both to their weaving and embroidery. We have in other articles described the machine-made lace of Nottingham, and it will be found that in the year 1846 the young women of that town did not earn more than 1*s.* for a day's work of fourteen hours on the finest specimens of embroidery; the depressed condition of the trade at that time being ascribed by Mr. M'Culloch† to the competition of the Belgians, who, like the Swiss, are exceedingly expert in this beautiful art. The same writer adds, that "the embroidery frame is most destructive to health. The workers in general commence at a tender age, and from constantly leaning over the frame, while their bodies remain in a state of inactivity, they are frequently distorted in their persons, and become the victims of pulmonary disease."

In conclusion, we may state that prize-medals were awarded by the jurors of the late Exhibition to ten different establishments in Switzerland for specimens of lace and embroidery; those produced by MM. Tanner and Sutter—both of Bühler, in the Canton of Appenzell—being eulogised as especially worthy of that distinction, for their admirable execution and tasteful design. In the latter quality, however, the remarks of the Jury should be taken with some reservation, since the introduction of human figures (for example, "William Tell in the Storm"), animals, landscapes, and armorial bearings, in some of the works referred to, evince a misconception of the subjects properly adapted to the delicate fabrics which they were intended to adorn.

* As much as a century ago fine Swiss muslins were purchased in America, and used as a protection from the musquitos.

† "Dictionary of Commerce (article, Lace)."

PLATE CXLV.

GROUP OF ENAMELLED OBJECTS,

BY MOREL AND CO. OF LONDON.

We have shown in a former Plate (CVII.) some beautiful specimens of M. Morel's skill in the addition of enamelled enrichments to his choice works in metal; and we take the present opportunity of saying a few words of the artist's career. M. Morel has achieved his high position by persevering industry and earnest study, in spite of considerable discouragement. As *chef d'atelier* of M. Fossier, he is known to have executed several fine works, of which we may mention the hilt of the sword presented to the Comte de Paris by that city; in this he introduced figures executed in repoussé, a mode of working the present popularity of which he has been mainly instrumental in creating. In 1842, M. Morel started an establishment of his own; and as early as 1844, at the Exposition of that year, we find his *atelier* classed with the first in France, and he received on that occasion the gold medal. M. Morel deservedly received considerable patronage from the late royal family of France, and from many distinguished connoisseurs, such as the Duke de Luynes, the Count Demidoff, the Baron Cambacéres, in whose collections some of the artist's choicest works are to be found.

At the unsettled period of the last French Revolution, M. Morel transferred his talents to this country, where he has since resided. The series of objects displayed by the firm at the Great Exhibition was particularly remarkable for the delicacy of the chasing and the beauty of the enamelled enrichments, and the Jury accordingly awarded them a Council medal for the excellence of their productions.

We shall now continue our historical sketch of the history of the art of enamelling from Plate CVII.

According to Vasari, the invention of the process of executing translucid enamels on relief is due to Giovanni Pisano; one of those great artists who, in conjunction with his father and the still more celebrated Giotto, were the first to relieve Italian art from the trammels of the Byzantine school, and to commence that uninterrupted succession of great masters which eventually raised the art of their native country to the same position in the modern world as that occupied by Greece in the ancient. Nearly all the cloisonné enamels were made separately from the articles they were intended to ornament, and were generally set in "chatons," or independent mountings, much in the same manner as gems. The new invention was an attempt to substitute something more artistic and attractive than the often meaningless patterns exhibited by the convolutions of the gold bands which formed the receptacles for the enamels of the cloisonné period. Accordingly, in 1286, Giovanni Pisano ornamented the highly-finished altar of the Cathedral of Arezzo with sundry marble statuettes, and, among other decorations, with "smalti posti sopra piastre d'argento," which may be generally paraphrased as "silver bas-reliefs with coloured enamels."

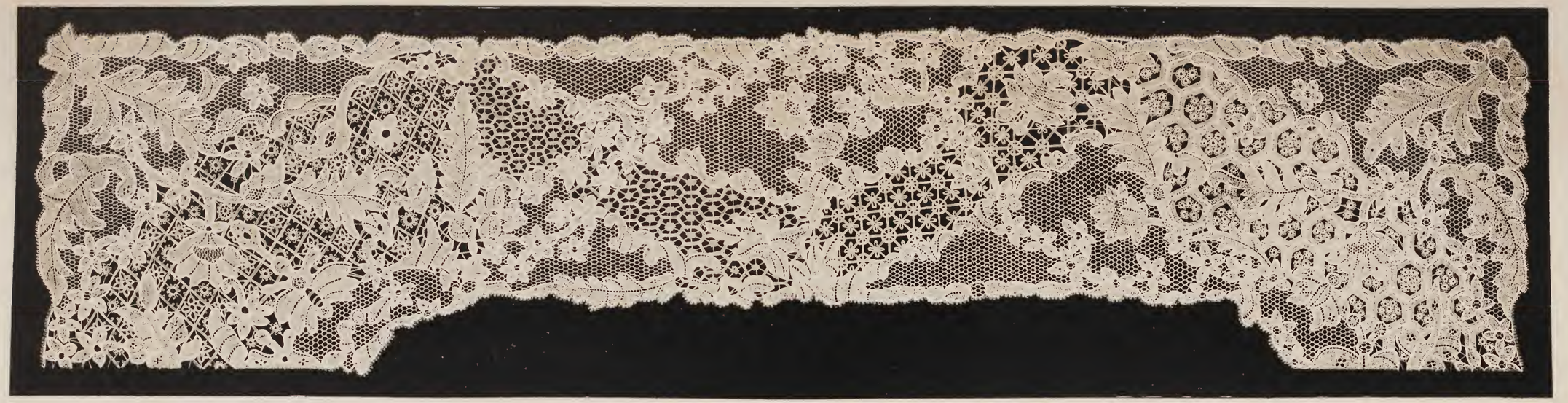
The whole process, as handed down to us in the "Trattato dell' Oreficeria" of Cellini, appears to have required no small skill, both artistic and manipulative, on the part of the workman, whose first care was to sink upon a thin plate of silver the surface to be occupied by the subject to the thickness of two or three leaves of paper. Upon this lowered surface the figures and their accessories were carefully sculptured in low relief, by means of delicate gravers, chasing-tools, &c., but in such a manner as to avoid bringing two sunk edges together, the object being to give as little opportunity as possible for the enamels to run into one another. These were then thinly spread over the various parts by means of a small spatula, and the

whole was gradually introduced into the centre of the furnace, from which it was withdrawn when the colours were just fused: the same process was then repeated a second time. The reason for taking the plate twice to the furnace appears to be, that in a thick coating of enamel the colours would have been more likely to intermingle than in two successive layers; and in some specimens, where this precaution has been neglected, the colours have actually run together, and to a certain degree injured the effect of the work.

Giovanni Pisano was not only the inventor of this art, but had the satisfaction of founding a school of artist-enamellers, whose productions have never been surpassed, and among whose names are to be found those of most of the great sculptors of the Middle Ages. Thus Agostino and Agnolo di Sienna were his pupils and fellow-workmen. To them succeeded Pietro and Paolo d'Arezzo, who made the famous enamelled reliquary to receive the head of St. Donato, bishop of that city. The two Ghiberti were also celebrated for their proficiency, but appear to have been surpassed by Antonio Pollaiuolo (the pupil of Ghiberti), whose productions were executed with so much delicacy that Vasari declares that no miniature could excel them. We can only mention the names of Francia, Caradosso, and Cellini: to the latter we owe our knowledge of the details of the process; but at that time the fashion had to a certain degree changed, and jewels, certain parts of which were enamelled, were more commonly required.

Early in the fourteenth century we find some traces of the process of translucid enamel-working being introduced into France, and eventually the artists of that country became very skilful; so much so as to merit the encomium of Cellini, who especially praises both the French and Flemish enamellers. The process which we have described above, however, was only practised by first-rate artists, as it presented great difficulties, only to be surmounted by very considerable manipulative skill. It is for this reason that the greater part of the English and French works, which contain translucid enamels, are generally defective in some particular. For instance, it requires a good artist to represent a three-quarter face in bas-relief; this difficulty was frequently overcome by not colouring the face at all, leaving it quite plain above the surface of the enamel, and expressing the features by means of engraving alone. But the most common method was to fill in the ground only with a transparent enamel, leaving the figures in the plain metal as in the champlevé-work. The surface for the ground was engraved with a diaper, which Cellini assures us was necessary to prevent the enamels from becoming loose: this, in fact, was the old Limoges process, but on a smaller scale, and with different materials. By far the greater number of the English and French works were executed in this manner,—a fact which we can only account for by supposing that the majority of goldsmiths did not possess the requisite skill; and, indeed, we seldom hear of any of that trade becoming sculptors or painters, as was the case with their Italian brethren. The Lynn cup, the clasps of the cover to the agreement of King Henry VII. made with the Chapter of Westminster in respect to the construction of his chapel, and the Bruce horn, are perhaps the finest examples of translucid work now remaining in England; but we have only to refer to any of the inventories of our sovereigns to find how often the word "enamelled" occurs in conjunction with gold and silver "vessaille." The same may be said with regard to those of Charles V. and VI. of France, and that of the Duke of Anjou, brother of the former king, from which M. Labarte has published some interesting extracts in his excellent work upon the Debruge Duménil collection. These enamels were almost always made separately, and afterwards set in a "chaton," so that in the extracts we generally find them described as placed at the bottom of basins, &c., or adorning the bases of statuettes, or the feet of hanaps and ewers. This peculiarity was evidently taken advantage of by dishonest goldsmiths, for we find an ordinance, dated 1355, forbidding them to place chalk under the enamels to increase the weight of the *orfèvrerie* which was then sold by weight: another proof that the majority of the enamels were not of a valuable nature.

Translucid enamels were also much employed in decorating those bizarre vessels which almost come under the denomination of large jewels, and which were so much in fashion at the period in question. Thus, in the inventory of the Duke of Anjou above mentioned, an ewer is mentioned as fabricated in the form of a cock, the body and tail of which were of "perle," and the neck, head, and wings of silver,—"Esmaillié de jaune, de vert, et d'azur." There are many other articles mentioned, equally rich and fantastic, the majority of which had doubtless been received as fines or presents, and would probably be disposed of when any difficulty arose with regard to paying troops or fortifying towns.



J SLIEGH, DEL.

M DIGBY WYATT, DIREXT

F BEDFORD, LITH

SPECIMENS OF LACE BY MISS JANE CLARKE OF LONDON.

LONDON PRINTED AND PUBLISHED FEBY 15TH 1853, BY DAY & SON, LITHOGRAPHERS TO THE QUEEN

PLATE CXLVI.

SPECIMEN OF POINT-LACE,

BY MISS JANE CLARKE OF LONDON.

In the remarks with which we accompanied Plates XXX. and CII. we attempted to indicate briefly the peculiarities involved in the manufacture of run or embroidered, and of machine-made, lace; on the present occasion our notices will be confined to that variety known as "point;" of the successful revival of the until lately extinct processes involved in forming which the object we engrave afforded so admirable a specimen. Strictly speaking, the term "point," as applied to lace, is correctly employed only in designating those fabrics which are formed by the needle alone, and in which the whole texture is wrought out by "overcasting" or looping a single thread in a variety of complicated stitches; very generally, however, the term is applied to varieties of embroidery, and even to combinations of pure "point" with pillow groundwork, as in the fabric known as old Brussels point.

Among the best authorities upon the subject the question has been much debated as to whether the "lacinia" of the ancients, from which the term lace is supposed to have been derived, consisted of lace worked with the needle, or of open-work embroidery only. Unfortunately the statues of antiquity fail to supply us with any definite details of the rich hems to the garments of the ladies, which were known as "Phrygian work" to have cost great sums of money. The best authority upon the subject may be met with in the drawings on the finer Nolan Vases, which show pretty clearly that the "lacinia" consisted both of embroidery on the edge of the robe, and of fringe formed by unravelling the end of the tissue and then plaiting the ends of the warp threads into geometrical patterns. That every variety of precious needle-work was known to the Byzantine Greeks there can be no doubt, as for some centuries the finest vestments and the richest orphreys were embroidered and worked for the imperial state and the maintenance of the sumptuous dignity of the Church. From the Greeks, whom the iconoclastic troubles drove to take refuge in the Scuola Greca, and other similar institutions in Italy, it appears highly probable that the ancient cunning of fine needlework was acquired by the inhabitants of the last-named country. We can be but little surprised, therefore, to recognise in the earliest works of the Siennese and Florentine masters indications of the existence and frequent use of all varieties of needle-worked lace. Not only do we recognise the peculiar twisted fringe of the ancients, popular even to the present day among the Calabrian peasants, but the pierced work resembling lace formed by cutting out portions of fine linen, and edging round the openings so formed in geometrical patterns with button-hole stitch. That these two varieties of working preceded regular point appears most probable, since although specimens of the former are common in the works of the painters of the fourteenth and fifteenth centuries, it is not until toward the beginning of the sixteenth century that any evidence of the existence of the art of working the latter is to be found.

The theory of the Byzantine origin of point-lace receives some confirmation from the fact, that its earliest developement in Italy may be traced to those very localities which maintained the most intimate commercial relations with the Greek Empire; thus at Venice and Genoa, especially the former, the art flourished, and to how great an extent is clearly shown in many old paintings by Carlo Crivelli, and yet more strikingly in the valuable costume pictures of Carpaccio, preserved in the Academy of Fine Arts on the Grand Canal.

The manufacture once started in these great centres of traffic, its products were rapidly diffused over the whole continent of Europe, and the ladies vied with one another in enriching their ruffs, tuckers, hanging sleeves, fardingales, and cuffs, with borders of this costly material, while the gentlemen wore it as an ornament to their collars and manchettes, and even ultimately as a trimming to their boots.

Vast quantities were manufactured in the Italian convents for the service of the Church, not only by way of rich hangings for the altar, but as apparels to the albs and surplices of the priests and deacons. The patterns of such laces were originally geometrical only; and it is curious, that among the earliest books, printed from wood-blocks in Italy, should have been collections of such designs for the use of nuns and embroiderers. These little works have now become of considerable rarity; some very interesting specimens were, however, lately in the possession of Mr. Dennistoun of Dennistoun. From 1550 to 1650 was the period during which the Venetian and Genoese point-lace was held in the highest estimation throughout Europe, with the exception of Spain, in which country the execution of a similar fabric was carried to the utmost perfection. The Spanish lace, however, beautiful as it was, never obtained a commercial reputation. Toward the close of the sixteenth century the whole style of the patterns for point-lace changed from the geometrical into the scroll and shell-work style. A comparison of the lace displayed in the pictures of Honthorst, Sir Antonio Moore, Holbein, or Zuccaro, with that in those of Vandyke, Jansens, Mytens, or Sustermans, will at once illustrate the peculiarities of the earlier and later styles of pattern. In France, Germany, and England, point-lace, although occasionally made, never reached the perfection it attained in Italy and Spain. The latest kind of really rich point-lace, however, that known as "Huguenot lace," and worked by the unfortunate victims of the revocation of the edict of Nantes, has, perhaps, in extraordinary fineness of texture, never been rivalled. Of late years the manufacture of really fine point-lace, rivalling the old Spanish and Italian in beauty, has been regarded as a lost art, and as such it would probably have continued to be held up to the present day, but for the enterprise and talent of Miss Jane Clarke, whose exertions have been crowned with the greatest success. The following is an extract from a communication with which that lady has kindly favoured us. She observes therein, that "the first idea I had of making such lace occurred to me in the year 1848, when a kind lady of Liverpool asked me to give her a design to have some lace made in Ireland, the people being in such great distress. I gave one, and when the lace was finished it was shown me, and I was so pleased with it that I gave orders for more. The work was so good that I felt assured still better things might be made. I then became acquainted with a Mrs. Bristow, a banker's lady of Belfast, who had charitably founded a school in that town, where the common muslin-work was made. I subsequently agreed to take charge of this school for her, and on the 1st of April, 1850, it merged into the establishment now known as Miss Clarke's lace-manufactory. On the occasion of the Exhibition I determined that real *point* should be made, and accordingly sent for the person who superintended my establishment, and having shown her the lace I wished imitated, instructed her as to how it was to be made. By diligently training the best hands, encouraging them with rewards, and constantly setting the best models before them, I am thankful to say I have arrived at the production of specimens which it has defied the discrimination of any but the finest connoisseurs to discern from the best old work. It is a truly satisfactory reflection to me to know in what comfort the revival of this art has placed many needlewomen, who were previously in great distress; and I am in great hopes that I may be enabled to maintain and ultimately increase my establishment."

Any comment upon this lady's valuable exertions must appear superfluous after her simple statement of facts; but it would be unfair to conclude this notice without alluding to the circumstance that, through her spirit and perseverance alone, several varieties of the richest and most novel garment-silks have been converted into staple manufactures in Spitalfields.

H. MAYE DEL

W. GIBBY WYATT. DIRECT

F. BEDFORD LITH

GROUP OF OBJECTS IN PORCELAIN.

BY COPELAND OF LONDON AND STOKE-UPON-TRENT.

LONDON PRINTED AND PUBLISHED FEB. 1ST 1862 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CXLVII.

GROUP OF OBJECTS IN PORCELAIN,

BY COPELAND OF LONDON AND STOKE-UPON-TRENT.

In closing our brief notices of English pottery (*see* former articles, Plates LXXXI., LXXXIX., and XCVII.), we must confine our attention to the productions of the district known as the Staffordshire Potteries, some of the happiest specimens of the beauty attained at which we have now the pleasure to submit to the attention of our readers.

Comprising, as that district does, the towns and villages of Stoke, Hanley, Shelton, Burslem, Etruria, Fenton, Lane End, Delph, &c., it is only within three-quarters of a century that it has attained any considerable commercial importance. It is probable, that even in the Roman era fictile wares were there manufactured; the abundance of clay and coal rendering the locality especially suitable for this manufacture. The earliest authentic records of the trade point, however, to the reign of Elizabeth, when some peculiar wares were made in this district. Of these the principal were "butter-pots." The neighbourhood having established an extensive trade in butter, an immense number of narrow cylindrical vessels for conveying it to market were annually made of the common brick-clay of the neighbourhood. The workmanship of these articles was of the rudest kind, and they were glazed with pulverised lead ore dusted upon them, and fixed by firing. Each jar bore an official stamp as a voucher of its capacity. Dr. Plot, in his "History of Staffordshire" (1686), alludes to these wares, and states, that the local traffic in earthenware was then conducted only by workmen on a small scale, or by pedlers, who conveyed the articles in baskets on their backs, through the adjoining counties. Besides the butter-pot, a tig, or drinking cup, with three handles, and a larger tig, or parting cup, with two handles, were produced at the same period; and there are still extant some Staffordshire ale-jugs of the period of the Revolution, made of the native marl, but ornamented with devices in white pipe-clay. Mr. Allan Cunningham alludes to a famous Royal Oak dish, as a great and popular triumph of local art. This, he observes, was "an immense soup-plate with Charles sceptred and crowned amongst the branches, his wig floating in vast redundance, and every golden acorn as large as the king's head."

About the year 1690, the brothers Elers, of Nuremburg, established some important works at Burslem. It is said, that these skilful manufacturers discovered the art of employing salt instead of lead ore as a glaze. Other accounts state that this was the accidental discovery of a servant girl in some culinary operation; but certain it is, that the Messrs. Elers availed themselves of it with great success. Too anxious, however, to keep their economical process secret, they employed only the most illiterate and ignorant workmen; and it is recorded that the elder Astbury, who, afterwards became a successful manufacturer, assuming and maintaining the manners of an idiot, entered into the service of the Messrs. Elers and discovered their processes. Aided by the local prejudice against the latter as foreigners, Astbury succeeded, by the year 1720, in driving them from the neighbourhood, and his improved manufacture took the place of the Delft ware previously in use, and led to a competition with the Lambeth manufacturers (the successors of the Dutch), the latter being ultimately superseded in popular favour.

In the reigns of Anne and George I., the Staffordshire clay was mixed with sand and pipe-clay, and coloured with oxide of copper and manganese. This produced what is known as the agate ware; and other

improvemcnts led to several varieties, called rcspectively Tortoiseshell ware, Crouch ware, and Queen's ware. Thc latter, a cream-coloured, hard-paste pottery, first introduced about the year 1756, is inseparably connected with the name of Wedgwood; for though not purely his own invention, the improvements which that great artist made in it sccured for the material its royal name and fashionable patronage.

Premising that the discovery, by Astbury the younger, of the application of calcined flints to increase the whiteness and purity of earthenwarc, had immcnsely facilitatcd the progress of the manufacture, we may proceed to notice a few leading points in the career of Josiah Wedgwood. This distinguished benefactor to the arts of his country was born at Burslem in 1730, and worked as a thrower in his elder brother's pottery. He was afterwards a junior partner in two other local establishments, and soon displayed a talent for the production of ornamental wares. In 1759, he commenced business at Burslem on his own account; and evinced as much commercial spirit and enterprisc as taste and liberality. It is impossible to enumerate the mechanical and commcrcial improvements introduced by Wedgwood; but in refercnce to his artistic productions, to which he himself attached more importance, we may rccord the fact that his catalogue, in the ycar 1777, comprised no less than 977 facsimiles of Greek and Etruscan camcos, 758 reproductions of similar works of Roman origin, and 366 intaglios. His copies of the Portland Vase, and his spirited competition for the purchase of the original, together with his employment of Flaxman and othcr distinguished artists, are matters of notoriety. The various terra-cotta wares of Wedgwood, his imitations of Etruscan vases, his jasper or onyx, his black basalt figures, rcsembling bronze, and his innumerable medallions of kings, emperors, and popes, are less known than thcir mcrits deserve. It is satisfactory to reflect that Wedgwood's labours were rewarded with an ample fortune, and that the closc of his life, which terminated in 1795, in his mansion at Etruria, a village of his own formation, was accompanicd by all the public honours and private regard to which he had so well entitled himself. Mr. Marryatt truly obscrves that Wedgwood "gave to hard pottery the vivid colours and brilliant glaze which, till that period, had been seen only on porcelain;" and in the equally sober language of his epitaph, we may add, that "he converted a rude and inconsiderable manufacture into an elegant art, and an important branch of national commercc."

Among those by whom the porcelain manufacturc has been developcd in this country of late years the late Mr. Spode dcserves to be pre-eminently noticed; and we are fortunate in being enablcd to offer a few particulars concerning his works, and those of his successor, through the kindness of Mr. Thomas Battam, the artistic superintendcnt of Mr. Alderman Copeland's premises at Stoke-upon-Trent. This establishment was originally founded by Mr. Spodc, nearly a century ago, and the first table service of printed ware was executed by that gentlcman in the year 1784. Mr. Spode died in 1797, and was succeeded by his son, who had, from thc year 1779, conducted with much ability a London branch of the cstablishment. The latter gentleman commenced the manufacture of porcelain in the year 1800; and by thc introduction of feldspar he succeeded in producing a much finer body than any prcviously made. Dying in the year 1827, he was succeedcd by his son, who cntered into partnership with the father of Mr. Alderman Copeland. The last-mentioned Mr. Spodc, the third in succession, survived his father but a few years; and the business was purchased of his executors in 1833 by its present worthy proprictor, who has greatly extended and improved the manufacture, and materially added to thc comforts and convenience of his workmen. The cstablishment at Stoke covers nearly eleven acrcs, and employs nearly onc thousand hands. Steam powcr is extensively used in grinding the clays, glazes and colours, working the lathes, and drying the goods. The bisquc warehouses are 600 fcet long by 30 feet wide. The earthenware manufactory is divided into squarcs,—as "the plate-makers' square," "the saucer-makers' squarc," &c. The "China Bank" is a large building, four stories high: the basement is stored with clay; the floor abovc is occupied by throwers, turners, handlers, finishers, &c.; above these are the flat and hollow-ware pressers, casters, &c.; and the top floor serves to contain the moulds uscd for the immense varicty of objects of different forms which are constantly in coursc of excution. The consumption of clay at Mr. Copeland's works is about 4000 tons, and that of coal from 18,000 to 20,000 tons annually. Our present engraving furnishcs somc graceful specimens of his success in the production of porcclain; we have before (Plate LVIII.) adverted to his admirable works in statuary porcelain, a matcrial specially his own; and we may add that he has rccently produced some beautiful and richly ornamcnted porcelain slabs, several of them measuring no less than 62 by 32 inches.

PLATE 148

PLATE CXLVIII.

AXMINSTER CARPET,

BY WATSON, BELL, AND CO. OF LONDON.

This beautiful specimen of manufacturing ingenuity is similar in its general character and mode of execution to the carpet which formed the subject of Plate CXXXII. It was designed by Mr. John Lawson, and executed by Messrs. Blackmore and Brothers, of Wilton, expressly for the Great Exhibition, at the cost and under the direction of Messrs. Watson, Bell, and Co., whose enterprise has largely contributed to the perfection attained in this important manufacture. We have already described the manner in which carpets of this kind are produced; and, as exhibiting the labour involved in the operation, we may observe that the present specimen contains sixty-four ties, or stitches, in the square inch. The productions of the firm were rewarded with a prize medal, as carpets "of first-rate quality, good design, and well executed;" and our readers will remember among the number the magnificent carpet executed by them, from the designs of Mr. L. Gruner, for Windsor Castle, which was not more remarkable for the excellence of its design and execution than for its dimensions; being fifty-six feet in length by thirty-eight feet in its greatest width.

The comparative novelty, the extent, and the variety of the carpet-manufacture of Great Britain, are alike remarkable. A century ago a carpet was an expensive luxury, whereas scarcely even the humblest dwellings of the land are now destitute of something of the kind. More than ten years ago it was computed that upwards of 4000 looms were employed in Great Britain in this manufacture; and, including the looms employed in working out some new processes, which we shall have to advert to, it is estimated that there has been an increase to the extent of thirty per cent on the whole number within the last seven years. The value of the carpets annually produced is about 1,000,000*l.* sterling; and, as the jurors of the Great Exhibition observe, "There is scarcely any branch of our manufactures that wears a more promising aspect for the future." On the different methods of weaving employed we shall offer a few remarks in the present article.

The nomenclature of British carpets is, in its present application, peculiarly unfortunate. By far the greatest portion of our so-called "Brussels" carpets are made at Kidderminster; those termed "Kidderminster" are made at Glasgow, Kilmarnock, Halifax, and other northern towns. The manufacture has entirely ceased at Axminster, and the carpets bearing the name of that town are in fact made at Wilton and in London.

The wool intended for carpet-weaving is combed or carded, according to the kind of fabric for which it is intended; the long-combed wool being applied to Brussels and the finer kinds of carpets, whilst the carded wool, having a shorter fibre, is used for the Kidderminster carpetting. The worsted yarn is spun by the throstle and the mule spinning-machines, and dyed before being woven by the loom. When it is remembered that the various carpets present exceedingly different appearances, some displaying the same pattern and the same material on each side, the colours alone being reversed; others having a hard surface of hemp or flax on one side, and a soft worsted surface on the other; others, again, having a short pile or nap resembling velvet; whilst another class have the richness and softness described in our former article, it must be obvious that numerous processes are required in their formation. Thus in the Kidderminster, or, more properly, the Scotch carpets, the warp is worsted, the weft is of wool, and the fabric "is so constructed as to constitute a double cloth, having two sets of warp threads and two of weft, each warp

being intersected by both the wefts. It is, in fact, like two pieces of worsted cloth united together surface to surface, and it might be possible to separate one from the other without destroying the web of either."* The looms are worked by hand, the warp being arranged horizontally in two tiers (or three for what is termed "three-fly"), and the threads are raised in the necessary order for the passage of the weft, by means of the Jacquard apparatus. The weaver is provided with as many shuttles as there are colours in the pattern, each carrying a differently-coloured yarn; and not only is much ingenuity displayed in the minor arrangements of the loom, but great dexterity is required in the workman.

A Brussels carpet consists of a textile fabric entirely formed of linen, to which a worsted surface is superadded. At the back of the loom are five frames, each containing two hundred and sixty bobbins of the same colour; the number of colours in English Brussels carpets being usually five. In France, six or seven frames are sometimes employed. The yarns from these bobbins unite to form a warp of twenty-seven inches wide; Kidderminster, on the contrary, being woven of the width of about a yard. The warp threads are raised by the Jacquard, and the weaver first throws a shoot of linen thread, and then performs the characteristic feature in the process, by introducing, under some of the warps, and over all the rest, a brass wire, rather longer than the width of the piece. These operations are alternately repeated, and thus the pattern is formed, the groundwork concealed, and a kind of loop produced, which, on the subsequent removal of the wire, imparts that round, full, and soft appearance which is so remarkable in Brussels carpets. At a late period of the Exhibition, Mr. Bigelow, of the United States, forwarded some Brussels carpets, woven, with the greatest success, by a power-loom invented and patented by him; and the Jurors award to that gentleman the highest praise for the skill with which he has accomplished a task which had long and justly been regarded as one of extreme practical difficulty. Mr. Bigelow's looms are in active operation in America. Improvements somewhat similar to this were brought under the notice of the Jury by Mr. Fawcett, and Messrs. Humphries and Sons, of Kidderminster. The manufacture of Brussels carpets was first introduced at Kidderminster about ninety years ago, by workmen from Tournay, in Belgium.

The third principal variety of English carpets is termed Wilton, or velvet pile. The process is the same as in the Brussels; but the wires are grooved, and, before they are withdrawn, the loop formed by them is cut through with a sharp instrument: thus producing a soft nap or pile. Unlike the Axminster carpets before described, those to which we have now referred are all made in widths, which require joining to form a complete covering for a floor.

Within the last twenty years, three new kinds of carpet have been invented and brought into extensive use. The first is Whytock's patent tapestry; which employs eight hundred looms, and is increasing in public estimation. In this an unlimited number of shades or colours can be introduced, and most elaborate designs can be executed. Its appearance is similar to Brussels, but the manufacture is more simple; "each thread being coloured separately, at spaces, with the various shades, as they follow each other in the design. The process by which this is accomplished is beautifully simple and ingenious, but requires much care in placing and arranging the threads, and putting them on the beam."† The next is the "Patent Axminster" of Messrs. Templeton and Co. of Glasgow: the object of which is to give the beautiful appearance of Axminster or Tournay at less cost. The last is a description of carpet having the same appearance as Brussels, or tapestry, which is woven plain by steam power, and afterwards printed by the same agency. This is extensively manufactured at Rochdale, by Messrs. Bright and Co., under Sevier's patent; and printed near Macclesfield, by Messrs. Burch and Co., by a machine invented and patented by Mr. Burch. Another novelty consists of a patent wool mosaic, the surface or pile of which is peculiarly close; made, probably, in the manner described by Mr. Vignolles at the meeting of the British Association in 1842: namely, by taking horizontal sections through a number of coloured threads arranged vertically so as to form a pattern — the section being fixed to a cloth covered with a cement of India rubber, or some similar material.

Besides these varieties of British carpets, a somewhat considerable trade has lately been carried on in fabrics imported from Masulipatam and other parts of British India: these productions being at present imported exclusively by Messrs. Watson, Bell, and Co. They are made of a cotton and linen foundation, to which tufts of strong wool are tied, in the same manner as in other Oriental carpets. The articles referred to are remarkable for harmony of colour and great durability, and have been lately much improved through the agency of the above-mentioned firm.

* Dodd's "British Manufactures," Carpet-weaving, p. 102.

† "Reports of the Juries on the Great Exhibition," p. 473.

PLATE CXLIX.

INDIAN ILLUMINATED MANUSCRIPTS.

We have already, in Plate LXVIII., adverted to the beauty and skill displayed in the illuminated manuscripts of the Hindoos, both in ancient and modern times. We need scarcely, therefore, call attention to the peculiarities of the example now engraved, but shall proceed instead with the historical sketch of Indian commerce commenced in our notice of Plate CXL.

We there adverted to the admirable account given by Arrian of the geography, the manufactures, and the trade of India; and, without dwelling upon the less trustworthy statements of Ptolemy, we may observe that the discovery of the monsoons necessarily facilitated the direct communication by sea between India and Egypt, and increased the trade which before existed. But on the decline of commercial enterprise among the Romans, Aduli in Abyssinia, and soon afterwards Siraf in the Persian Gulf, succeeded Berenice and Myos Hormos as the two great dépôts of the Indian trade. The merchants of the former ports carried on an extensive traffic along the western coast of India, and as far south as Ceylon; which was then the eastern limit of their voyages. Indeed, during the fourth, fifth, and sixth centuries, Ceylon was the great entrepôt of Indian commerce; enjoying as it did an active and extensive intercourse with Bengal. Ammianus Marcellinus, a writer of the fourth century, mentions, amongst the products exported from thence, the coarse native silk of India, which he states was so common and low-priced that even the poorer classes of the people of Rome could afford to purchase it. Ceylon is particularly mentioned by Procopius, about the same time, as the place where the natives of different parts of India assembled for conducting the trade with Europe. The same author especially adverts to the silken dresses, long before extolled by the Greeks, as "Indian robes."

In the reign of Justinian (527—565 A.D.) the native silk of Eastern India was subjected to a duty; to meet which the merchants raised its price. The emperor was in consequence led to fix a maximum value upon it, which in its turn ruined the trade. Cosmas Indicopleustes made several voyages to India in the same reign, and his work, entitled "Christian Topography," contains many curious particulars, and corroborates the views of Heeren on the importance of Ceylon; which was then frequented by vessels from China, Persia, Arabia, and Ethiopia. A peculiar interest attaches to this period from the introduction into Europe of the eggs of the silkworm, which, carefully preserved in the hollow joint of a bamboo, were brought (as we have mentioned in other parts of this work) from China to Constantinople by two Nestorian monks, who taught the subjects of Justinian the art of manufacturing silk.

In the seventh century the Mahomedan dominion was established by the Caliph Omar, on the banks of the Euphrates; the city of Bassora being founded by him in the year 636. Its advantageous situation soon conferred upon it great importance in the transmission of Oriental productions to Europe; and throughout the Caliphate there was a constant intercourse between India and Bassora, and thence, through Mesopotamia, to the shores of the Mediterranean. Alexandria, however, still participated in the Eastern trade; the ancient communication overland, by means of caravans passing through Central Asia, was not discontinued; and the different outlets thus opened for Indian commerce gradually interfered with the importance of Ceylon. Moreover, the merchants of Bassora, who were chiefly Arabs and Jews, extended their voyages to Eastern India and China; and, by degrees, the disciples of Mahomet settled in different parts of India, preparing the way for the subsequent invasion of the country, and introducing with them, among other arts, that of embroidery, which is of Western origin, and the practice of which is still, for the most part,

confined to the Mahomedan races in Hindostan. There is a curious work, written in the ninth century by two Mahomedan travellers, and translated by the Abbé Renadout, entitled "Accounts of India and China;" but, without dwelling in detail on the marvellous narrations of these and other old travellers (which might, however, furnish an amusing chapter), we may observe that they again point out the excellence of the Indian muslins, and describe the trade in ivory, gold, silver, drugs, and other well-known products of the East.

The Mahomedan conquest of north-western India, towards the end of the tenth century, the extension of their dominion to Bengal at the beginning of the thirteenth, and the consequently increased communication with Arabia, in pilgrimages to Mecca, &c., are events belonging rather to the social than the commercial history of India, and we only advert to them to indicate the course of its external trade. Constantinople continued to be the great mart for Chinese and Indian productions, the commerce remaining in the undisputed possession of the Mahomedans.

When, however, Venice had asserted its independence, all the energies of its citizens were applied to commerce, and they soon became formidable rivals to the Greek merchants. Trading to the harbours of Egypt and Syria, their zealous efforts were gradually sanctioned by the Caliphs; and, at length, in 1204, the Venetians led the fourth crusade, and completely overthrew the Byzantine empire, securing for themselves one third of the Greek territories, and ultimately an absolute monopoly of the Eastern trade. When, by a subsequent rebellion of the Greeks, the Genoese obtained the command of the trade by Constantinople, the Venetians resorted to the ancient route by Alexandria; but in 1453 the Genoese were expelled by Mahmoud II., and Venice was enabled to regulate at pleasure the terms on which Europe might obtain the necessaries and luxuries of the East. The quaint Venetian traveller, Marco Polo, furnishes us with many amusing and interesting particulars of Bengal and other parts of India in the latter part of the thirteenth century; but into these our limits preclude us from entering.

The supremacy of Venice was, however, destined to receive a blow as fatal as unexpected, by the discovery, in the year 1498, of the passage to India by the Cape of Good Hope; which event conferred lasting honour on the Portuguese admiral, Vasco de Gama, and corresponding wealth and influence upon his country. The Portuguese were the first Europeans who acquired any dominion in Hindostan; and, supported by the authority of the Pope, they contrived, for nearly a century, to monopolise the trade by the newly-discovered route. Great was the consternation of the Mahomedans and the Venetians at this successful competition, but their efforts to oppose it were completely unavailing.

Among the travellers of the sixteenth century who have left us their observations on India, we may name Lewis Vertomannus, a gentleman of Rome, who visited the East in 1503. He states that fifty ships were then despatched annually from Bengal, and he also corroborates the fact stated before by Marco Polo, that many Nestorian Christians had settled in India, some of whom had, in the time of Vertomannus, become merchants. The textile fabrics of Bengal are eulogized by Barbosa about the year 1516, and nearly half a century later, in the "Mohit," a Turkish nautical journal. Ralph Fitch, in 1586, was the first English traveller who visited eastern India; and Lindschoten, in 1599, may complete the list of travellers in this century.

The Portuguese were long engaged in warfare with the Mahomedan rulers of Bengal, and did not succeed in establishing agencies in that province till the end of the sixteenth century. In the meantime England, gradually recovering from the terror inspired by the Papal authority, and from the subsequent effects of the civil war, began to compete with the Portuguese for the trade with India. Captain Stevens, in 1582, was the first Englishman who sailed to India by the Cape of Good Hope; he was soon followed by Sir Francis Drake; and the greatest interest was excited by the voyage of Cavendish in 1586, and by the contemporaneous capture of several Portuguese ships laden with Oriental produce. In 1593 an armament, fitted out for the East Indies by Sir Walter Raleigh, and commanded by Sir John Burroughs, brought into Dartmouth a Portuguese ship of 1600 tons and 700 men, with a cargo of gold, spices, calico, pearls, drugs, porcelain, ivory, &c.; and the intense interest excited by these and similar events led to the formation of the first British East India Company, which, in the year 1600, was established under the name of "The Governor and Company of Merchants of London, trading into the East Indies."

The effects of this great establishment upon the commerce of India, its early competition with the Portuguese and the Dutch, and some other points illustrative of our general subject, may be noticed in a future article.

F SMALLFIELD, DELT

M DIGBY WYATT DIREXT

F BEDFORD LITH

GROUP OF FURNITURE BY SNELL OF LONDON

LONDON PRINTED AND PUBLISHED MARCH 1ST 1853 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CL.

GROUP OF FURNITURE, BY SNELL OF LONDON.

The beautifully-executed looking-glass, which forms the principal subject of the present Plate, was made by Mr. Snell for James Morrison, Esq., from designs by the late firm of Wyatt and Brandon, and forms one of a series of important articles in a similar style carried out by Mr. Snell for the above-named gentleman. The fact that we have already given such particulars as we had been enabled to gather concerning Mr. Snell's establishment, affords us now an opportunity of completing our historical sketch of English furniture, which, in our last notice, we brought down to the period of the English revival. Of this style the existing specimens are very numerous, consisting of sideboards, chairs, bedsteads, &c., the shallow surface-ornaments, unmeaning scrolls, and rudely-executed caryatides of which proclaim them to be of the debased era of Elizabeth and James I. It is true that many of these have been imported from Flanders, and that the antiquity of a still larger number is more than doubtful; but, after allowing for these deductions, there is still a great quantity of the furniture of the latter part of the sixteenth and the beginning of the seventeenth century in existence. In many parts of the country there are some houses entirely filled with it, and many of the rooms in the mansions of the nobility have remained *in statu quo* since Elizabeth or her successor visited the place in their numerous progresses.

The chairs of the Elizabethan period are exceedingly high-backed, the seat and other parts often covered with rich embroidery, or cloth of gold and silver; the legs and rails are generally turned, and the flat spaces ornamented with shallow surface-carving. Occasionally we find the old camp-stool type in use, but with carved legs and stuffed arms and back. The tables were constructed and ornamented very much in the same manner as the chairs, the legs being turned into exaggerated imitations of vases. Many of the old halls attached to the colleges of Oxford and Cambridge are fitted with elaborately-carved tables and benches of this period. The old arrangement of a large board and trestles still continued in use where a number of guests were to be accommodated; and Turkey carpets were employed to cover both them and the "court-cupboard," as the temporary buffets of the fifteenth century were called; the common cupboard or sideboard was made of oak, and consisted of a large closet below, the upper part containing two smaller ones, with an open space in front, which was covered by the corner supported on two or more pillars of fanciful forms. These closets served to contain the service of plate or pewter, which was displayed during the dinner or supper, on a rich cloth placed on the open space or shelf in front.

Shakespeare makes frequent allusions to the custom of covering the floors with rushes, and we learn from other authorities that dry bulrushes were much valued for that purpose. Occasionally we find that these were allowed to remain unchanged for a considerable time, to the obvious injury of the health of the inmates of the apartments. The walls were hung with tapestry, for the most part imported, or covered with stories in "waterwork,"—a rude species of fresco to which we have already alluded.

Pictures began to be used to ornament some of the best rooms; but they were considered so precious, that they were commonly kept covered with a curtain. As to the bedrooms, we find, that if the owner of the house was unmarried, there were two beds in the principal rooms; the standing-bed for the master, and the truckle-bed, which in the daytime was rolled under the larger one, for the servant. The celebrated bed of Ware is a fine example of the four-post or standing-bed. A good and unbroken series of state-beds, from the time of Elizabeth to that of George III., might no doubt be found in the various seats of the nobility. They are generally very high, and the canopy surmounted with plumes of feathers, their decoration consisting

in the richness of the curtains and quilt, as in the bed of James I. now at Knowle. The bedroom was further provided with benches, not unlike our sofas; chairs and dressing-table, covered with embroidery, and a polished steel mirror, in a black velvet frame with a curtain before it, completed the furniture. The clothes were still kept in the great chests, although we are assured that Anne of Denmark was in possession of a chest of drawers; a substitute for which was found in the wardrobe, a high erection filled with shelves, and often with no other means of security than a curtain before it to keep out the dust.

A better style prevails in the furniture of Charles I. Although the forms of nearly all the articles remain the same as in the preceding reigns, the ornaments are in better taste, and we take our leave of the hideous knobs and scrolls, which are replaced by designs borrowed from the school of Rubens. Small balusters are frequently employed in the backs of chairs, which are open, surmounted by gold tassels. We do not hear much of the magnificence of the furniture of Charles I., whose ambition was rather to fill his palaces with works of art, and we find that he possessed one of the finest picture-galleries of the age; besides his collection of medals, coins, and sculpture, which consisted principally of good copies from the antique. In the Parliamentary inventory of his effects there are mentioned, however, several suits of tapestry of great value: thus, the set of hangings representing the story of Abraham was considered to be worth 8260*l.*; and another, with the history of Julius Cæsar, is entered at 5019*l.* There is also a description of a cloth of estate, of purple velvet embroidered with gold, containing the arms of England, and ornamented with a considerable number of pearls and jewels. The same fashion continued during the period of the Commonwealth, except that the tapestry was superseded by the gilt and stamped leather, which had been introduced into this country early in the seventeenth century.

The reigns of Charles II. and James II. present us with several novelties, principally imported from France,—marquetry, for instance; so called from M. Marquet, who claimed the invention, although the art had been practised in Italy and Germany for at least two centuries previously. Much of the furniture of the higher classes was gilt. At Granton House, in Scotland, a gilt sofa-stool and several other articles of furniture, which are said to have belonged to the unfortunate Duke of Monmouth, are still preserved. Occasionally valuable materials were employed; and Mr. Shaw has engraved a small table looking-glass and candelabra of silver, which are still preserved at Knowle, in Kent. In the ordinary furniture, the principal feature is the use of twisted legs and rails to the chairs and tables; the covers of the latter were cut up at the angles, and connected by frogs of gold lace. We also meet with cabinets having glass-fronts, for the purpose of displaying choice specimens of China, which began to be imported in considerable quantities. We no longer hear of the floors being strewed with rushes, a fashion which probably disappeared about the time of the Commonwealth; the substitute appears to have been matting, with which all the rooms not devoted to state purposes were laid.

The rococo style, which commenced about the latter end of the reign of Louis XIV., and which attained its height in that of his successor, began to pervade our furniture in the early part of the eighteenth century; and although the scroll-and-shell work is no less unmeaning and ugly than that of the time of Elizabeth, it is often arranged in flowing lines, and frequently receives the aid of marquetry and buhl, so that the general effect is sometimes rather agreeable. The principal novelties are fauteuils, girandoles of cut-glass, and the screens and cabinets of japanned work; these latter were at first imported, but very soon our workmen learnt to imitate them with great success. Mahogany had been introduced by Dr. Gibbons (a physician in the latter end of the seventeenth century), and shortly after we find most of the best furniture made of that material. During the reigns of the two first Georges the furniture became plain and meagre, and claims but little attention as regards art.

The French Revolution introduced severe classical taste, and the furniture followed the prevailing fashion. The productions, however, of the school of David were certainly very different from the few classic models of chairs, &c., which have come down to us; and when imitated as they were by the English upholsterers, even under the influence of Mr. Hope's graceful examples, became still more unlike anything of the classic ages. Since that time we have had no style at all, and if any carving is added to our furniture, it is usually in the debased taste of Louis XV. The velvet and cloth-of-gold coverings of the middle ages have given way to the less durable silk damask or chintz. An improvement is certainly visible in the style of our furniture of recent manufacture, of which the specimens by Messrs. Snell, as well as some others, contributed to the Great Exhibition, present hopeful indications.

F BEDFORD LITH

W DIGBY WYATT DIREXT

GROUP OF OBJECTS ENRICHED WITH DAMASCENING BY FALLOISE OF LIEGE.

LONDON PRINTED AND PUBLISHED MARCH 1ST 1855 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CLI.

OBJECTS ENRICHED WITH DAMASCENE WORK,

BY J. FALLOISE OF LIEGE.

The present Plate exhibits some very excellent specimens of the now almost extinct art of damascening, and we congratulute the manufacturer on the successful revival of the art, as the process is one which requires a rather unusual amount of artistic and manipulative experience. It is only a few years since this art has been revived in France, Spain, and Belgium, each of which countries contributed specimens to the Great Exhibition, and those now engraved were certainly among the more successful.

There are few arts which can claim a much earlier origin than that of affixing ornaments of gold and silver upon the more common and baser metals, and the various processes required in gilding denote a far greater progression in the useful arts than was required to rivet thin engraved strips of gold upon a bronze ground; a method of ornamentation which we observe in the earlier works of the Etruscans, and which is also described by the more ancient Greek writers. Probably the most interesting specimens of this description are the remains of the votive car found at Perugia, and of which portions are preserved in the British Museum and the Cabinet de Médailles at Paris.

Damascening proper has been executed in two different modes. The first of which consisted in sinking the ground required for the ornament, and filling up the space with a piece of a different metal, which was effectually prevented from becoming detached by undercutting the sides of the incision. It is in this manner that the majority of the works of the Romans, Irish, and Arabians, are found to have been executed. The second process was probably a much later invention, and was principally employed by the French and Italian artists of the sixteenth century. In this the surface of the iron was roughened by means of a fine file, and the ornaments were fixed by pressure: the whole was afterwards burnished, by which means that part of the ground not covered was reduced to its original polish. Varieties of these two processes obtained at different places and at different periods; thus, for instance, the Arabs sometimes affixed the gold by means of puncturing the surface to be covered into little sharp points, by which the ornaments, when once fixed by pressure, were effectually retained in their places: but nearly every specimen may be considered as merely a variety of one of the above-named processes, the knowledge of the first of which appears to have been diffused almost universally.

The classic ages have left us very numerous works of art in metal, but, unfortunately, few of them have been found with any damascened ornaments. It is true that the "emblemata crusta" used in decorating the rich armour and *vessaille* of the emperors and patricians were frequently executed in a different metal from the articles of which they formed the chief ornaments; but as they were not permanently fixed, they must be considered rather in the light of gems or enamels than as specimens of damascening, which may be strictly defined to be the art of fixing ornaments of one metal upon another by pressure, and without the aid of solder.

The statue said to have been found in Suffolk, in 1799, and a few more unimportant articles in the Gem Room of the British Museum, are almost the only examples of the proficiency of the ancients in this

art which are accessible in this country. Of those on the Continent, we may mention the famous table of Isis, and one or two other examples in the Italian and Parisian Museums.

In the East the practice of decorating personal arms, both offensive and defensive, with gold and silver, has obtained uninterruptedly from the earliest periods down to the present time. The specimens of Sikh armour captured in the late Indian campaigns would not disgrace those times when the subjects of the Latin kingdom of Jerusalem were accustomed to resort to Damascus to purchase the ornamented weapons, which were manufactured in great numbers throughout the whole country of Mesopotamia, and brought to that city as the great emporium for their sale.

But arms and armour were not the only objects which occupied the attention of the Arabian workman, for we find that a considerable trade was carried on in vessels of bronze ornamented with intersecting threads, foliage, inscriptions, &c. in gold and silver; and the artist sometimes so far forgot the injunctions of his religion as to attempt imitations of hunting-scenes, &c., somewhat rude in design, it is true, but often exhibiting no small amount of spirited drawing. Many of these vases have found their way to Europe, and are to be met with in the various museums and collections of amateurs; more particularly in France in those of the Duke de Blacas and Prince Loltykoff, and in England in those of Edward Falkener, Esq., and Octavius Morgan, Esq. Some of them are exceedingly valuable in an historical point of view, as presenting us with inscriptions, from which we learn the name of the artist and place of fabrication, and not unfrequently the date. The most famous of these vases is that now preserved in the Louvre, and said to have been brought by St. Louis from the Holy Land, on which is a legend informing us that it was made by "Mohammed son of Zin-Eddin, to whom may God show mercy."

It is remarkable, that although we find that the Crusaders bought Oriental arms at Damascus, and sometimes brought the more elaborate articles to Europe, as in the case of the "Vase de Vincennes," no attempts should have been made to imitate the manufacture until the middle of the fifteenth century, when we find it in use in Italy for decorating the plate armour which was then adopted in that country. It is most probable that the art was first imported by the great trading cities, such as Venice, Pisa, and Genoa, from the East, and was afterwards taken up as a more permanent decoration for armour than parcel-gilding by the artists of Milan, which city was then to Europe what Damascus had been to the East, viz. the great emporium for the best arms and armour. So exclusively, indeed, was the art in the first instance employed upon weapons, that to the very last the Italian writers designate it under the title of "lavoro all' azzimina."

At the beginning of the sixteenth century the art began to be exercised out of Italy, and it is by no means improbable that it was taught to the workmen of France and Spain by those travelling artists whom the vanity of the kings of those countries attached to their courts. Probably the finest existing specimen of damascening is the armour of Francis I., now in the Cabinet de Médailles at Paris. Both this and the shield in her Majesty's possession at Windsor have been attributed to the famous Cellini; but on comparing them with any of his known works, the drawing of the figures indicates rather a French artist than that broad style which Cellini had acquired from his study of the works of Michael Angelo.

From that time down to the middle of the seventeenth century a great number of arms were decorated with damascening, of which the Louvre, the Cabinet de Médailles, and the Musée d'Artillerie, contain numerous fine specimens; and the names of Michael Agnolo, Negroli, the Piccinini, and Cursinet, may be mentioned as excelling in Damascene work, as well as in the art of the armourer generally.

In our own country the art does not appear to have been much exercised, parcel-gilding, engraving, blacking, and russetting, being well received as substitutes; and the few specimens we possess were probably imported or captured in our foreign wars, as in the case of the splendid suits of armour brought to England by the Earl of Pembroke after the battle of St. Quintin.

M DIGBY WYATT, DIREXT

F BEDFORD LITH

GROUP OF INDIAN OBJECTS PRINCIPALLY ENAMELLED.

LONDON. PRINTED AND PUBLISHED MARCH 1ST 1853, BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CLII.

GROUP OF INDIAN OBJECTS, PRINCIPALLY ENAMELLED.

It will be in the recollection of our readers that a sum of 5000*l.* was allotted by Her Majesty's Government for the purchase of fine specimens of art and manufacture from the Great Exhibition, as the nucleus of a Museum under the newly-formed Department of Practical Art, for the benefit of the Schools of Design in association with that department, and for the instruction and gratification of the public at large. The admirable collection which has been thus formed has been thrown freely open, both for inspection and study; and that its attraction and interest have been properly appreciated is amply proved by the numbers who have visited it.

The practical utility of the objects contributed to that Museum from the Indian department of the Exhibition has been greatly aided by an admirable descriptive and critical catalogue of the different objects, prepared by Mr. Owen Jones; and feeling, as we do, that the characteristic merits of such productions cannot be too strongly enforced, we adopt the following judicious comments by that gentleman, in further illustration of the principles we have before endeavoured to exemplify:—"In the Indian collection," Mr. Jones observes, "we find no struggle after an effect; every ornament arises quietly and naturally from the object decorated, inspired by some true feeling, or embellishing some real want. The same guiding principle, the same evidence of thought and feeling in the artist, is everywhere present; in the embroidered and woven garment tissues, as in the humblest earthen vase. There are here no carpets worked with flowers whereon the feet would fear to tread; no furniture the hand would fear to grasp; no superfluous and useless ornament, which a caprice has added, and which an accident might remove. The patterns of their shawls, garments, and carpets, are harmonious and effective, from the proper distribution of form and colour; and do not require to be heightened in effect by strong and positive oppositions. We have here no artificial shadows, no highly-wrought imitations of natural flowers, with their light and shade, struggling to stand out from the surfaces on which they are worked; but conventional representations founded upon them, sufficiently suggestive to convey the intended image to the mind, without destroying the unity of the object they are employed to decorate. With them, the construction is decorated; decoration is never, as with us, purposely constructed. With them, beauty of form is produced by lines growing out one from the other in gradual undulations: there are no excrescences; nothing could be removed and leave the design equally good or better. Their general forms are first cared for; these are subdivided and ornamented by general lines; the interstices are then filled in with ornament, which is again subdivided, and enriched, for closer inspection. In their conventional foliage, in all cases, we find the forms flowing out from a parent stem, so as to cover the space to be filled with the most exquisite skill: we are never offended, as in European works, by the random introduction of ornament which cannot be accounted for; every flower, however distant, can be traced to its branch and root."

The same discriminating writer adds, that "in the management of colour, the Indians, in common with most Eastern nations, are very perfect; we see here the most brilliant colours, harmonised as by a natural instinct: it is difficult to find a discord; the relative values of the colours of ground and surfaces are most admirably felt. Their object appears to be, in their woven fabrics especially, that each object should be softly, not harshly, defined; that coloured objects viewed at a distance should present a neutralised bloom; that each step nearer should exhibit fresh beauties; and a closer inspection the means whereby these effects are produced."

F. SMALLFIELD. DEL.

M. DIGBY WYATT. DIREXT.

F. BEDFORD. LITH.

SPECIMENS OF SILVERSMITHS WORK BY MARREL FRÈRES OF PARIS

LONDON PRINTED AND PUBLISHED MARCH 15TH 1853 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CLIII.

SPECIMENS OF SILVERSMITHS' WORK,

BY MARREL, FRÈRES, OF PARIS.

Little more than thirty years ago the heads of the above now wealthy and important firm were but simple workmen, the one a jeweller, the other a silver-chaser: in the year 1822 they started in business together, and by their talent and energy soon succeeded in acquiring reputation. In the French Exposition of 1839 they found an opportunity of exhibiting to the world those powers of production which had already obtained for them the esteem of some of the most distinguished connoisseurs in metal-work. They were rewarded on that occasion not only with a gold medal, but with many substantial commissions given to them by various members of the Royal Family. On the occasion of the Great Exhibition of 1851, they came forward under a not less successful aspect; since not only were they honoured by the award of a Council medal, but the Committee appointed to select objects to be purchased for the Museum of Practical Art added no less than five important objects to that collection from among the most graceful specimens exhibited by MM. Marrel. As a recognition of their distinguished merits, on their return to Paris from England, the President of the French Republic awarded a decoration of the Legion of Honour to the senior partner in the firm.

The present subject affords an opportunity of briefly completing our historical sketch of the jeweller's art in France, which, in our article on Plate CXIII., we brought down to the period of the Renaissance. Although that style began to make its appearance in the works of the French jewellers in the reign of Louis XII., when the extensive patronage of the powerful Cardinal Amboise gave considerable impetus to the art, it was under Francis I., who invited to his court the great master of the Renaissance, Cellini, that the jeweller's art reached its highest perfection. Of the vast quantities of works in the precious metals executed at this period, a very large amount is supposed to have been melted down to pay the ransom of Francis I., and much more was, no doubt, refashioned in after times; but the Museum of the Louvre still contains a fine collection of jewelled and enamelled cups and other objects, which sufficiently attest the skill and taste of the goldsmiths and jewellers of this age. One of the richest jewels which the fashion of the period introduced, and which continued to be used for a considerable time, was the "enseigne," a species of medal generally worn in the hats of the nobles and in the head-dress of the ladies. The custom of giving presents on all important occasions furnished constant employment to the jewellers of Paris and in the vicinity of the court, even during the troubled period of the wars of the Reformation. The restoration of peace at the accession of Henri IV. caused an increased demand for the goldsmiths' productions; and subsequently the magnificence of the Cardinals Richelieu and Mazarin paved the way for the siècle of Louis le Grand, for whom numerous fine works of art were executed by the Parisian goldsmith Claude Ballin, who, together with Labarre, Vincent Petit, Julian Desfontaines, and others, worked in the Louvre. One of the objects, which greatly employed the ingenuity of the jeweller at this period, was the "aigrette," which was generally worn by the nobility. From this time the style of the French jewellery rapidly declined, until the general destruction caused by the great Revolution opened the way for the improvement in taste which commenced under Napoleon, and which has steadily progressed to the present time, when the works of Vechte, Froment Meurice, Morel, Lebrun, Marrel, Rudolphi, Odiot, and others, have completely revived the old reputation of the country.

Owing to peculiar circumstances, the manufacture of jewellery in France is chiefly concentrated in the capital, and forms, perhaps, the most important branch of the "Industrie Parisienne." We propose, therefore, to give a

M. DIGBY WYATT DIREXT

SPECIMEN OF HONITON LACE BY MRS TREADWIN OF EXETER.

LONDON PRINTED AND PUBLISHED MARCH 15TH 853 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CLIV.

SPECIMENS OF HONITON LACE,

BY MRS. TREADWIN OF EXETER.

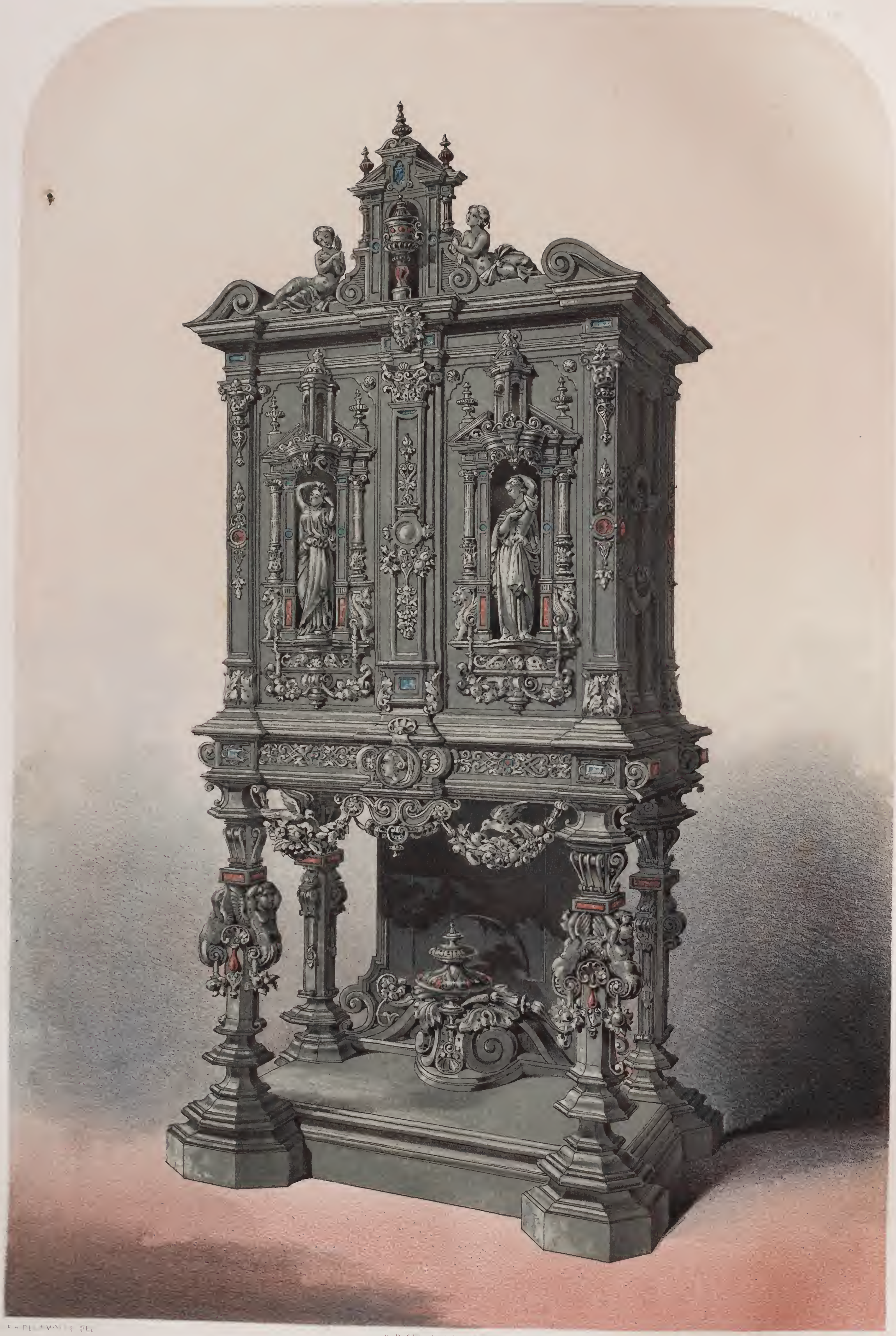
In preceding notices (of Plates XXX., CII., and CXLVI.,) we briefly treated the subjects of "run," "machine-made," and "point" lace; and on the present occasion we propose to complete the series by a few observations on what is commonly known as "bone" or "pillow" lace. The peculiarity of this fabric consists chiefly in the process by which it is manufactured, and which may be thus described in general terms. A pattern having been drawn upon a piece of parchment, which is laid upon a hard pillow, pin-holes are made in the parchment in the lines of the ornament, so as to serve as a guide for the subsequent operations of the manufacture. A number of threads attached to the pillow are then ingeniously wound and twisted round one another, each thread being gradually unwound from the small bobbin or "bone" to which it is attached, as it is used up in the working out of the pattern, and secured as it is twisted by the insertion of pins in the marked pin-holes. From time to time as portions of the work are completed, the pins which kept them in place are removed, and inserted in other parts of the ornament, which are again made out by the twisting of the threads, and so on until the whole is completed. Drawing out the whole of the pins releases the finished fabric at once from the pillow and from the parchment, which served only as a guide for the operative in making the lace. As on the order in which the several bobbins are taken up and twisted round one another, must obviously depend the intricacy and regular texture of the fabric, it is in that department that the great skill of the workwomen is shown, and some are so expert as to be able even in a large piece of work to contrast the fillings in of the pattern in apparently infinite variety. Certain particular formulæ obtain, however, more extended popularity than others, and lead to the establishment of certain recognised meshes, which, when used as the plain work upon which the ornamental parts are relieved, are distinguished by the trade as "grounds" of various kinds, such as Mechlin, Old Mechlin, Brussels, "Trolly," "Wire," &c.

Some writers have inferred that this manufacture commenced at so early a period as the fifteenth century, but it is probable that they have been led into this apparent fallacy by the confusion which exists in ancient documents in the application of the term "lace." There seems little reason for doubting the direct testimony of Beckmann, that the art of bone-lace making was invented by one Barbara Uttman, a native of St. Annaberg, in Saxony, in the year 1561. From the Electorate, in which at that time every novelty and luxury were most extensively patronised, the art found its way into the Netherlands, where it speedily assumed an established position as one of the staple manufactures of the country. The fabrics wrought at Mechlin, Brussels, Valenciennes, and Lisle, greatly interfered with the demand for the point-lace of Venice and Genoa, and rose in universal estimation, until at last even fabulous prices came to be given for this remarkable product of Flemish ingenuity. Some refugees from Flanders, in the year 1666, carried the art to France during the administration of the great Colbert, and, under the auspices of the celebrated Madame Dumont and her four daughters, the manufacture became firmly established in that country.

Although it is probable that the art was brought into England by some Flemish refugees who settled at Cranfield, a village on the western borders of Bedfordshire, no direct evidence exists upon the subject. Certain it is, however, that in the year 1626 the free school of Great Marlow, in Buckinghamshire, was endowed, "To

teach twenty-four boys to read, &c., and twenty-four girls to knit, spin, and make *bone*-lace." There exists ample evidence, not only that the home trade had grown into a flourishing condition by the end of the seventeenth century, but that it had even become extended into an export one.

With regard to that particular variety of lace of which the objects engraved presented so admirable a specimen, we are happy to have it in our power to give some interesting information upon the subject, derived from the lady whose exertions have done so much to elevate the character of Devonshire work. In her valuable communication Mrs. Treadwin informs us, that "The lace-trade has been carried on in Devonshire for more than two hundred years, for there is in the churchyard of Honiton a stone in memory of James Ridge, bone-lace dealer, who died in 1617, and left a sum of money for the benefit of the poor of Honiton; and in a book mentioning two great fires which occurred in 1756 and 1767 in Honiton, the suffering of the many employed in lace-making are spoken of. Although the lace-trade at that time was extensive, it must then and for a long time after have principally consisted in producing the nett or Honiton ground (a nett much like the present machine nett), in which the sprigs first separately made were worked in on the pillow. This kind of nett was very expensive, and one of the old people formerly in the trade showed me a piece about eighteen inches square, which she had had made just previous to the machine netts coming into use, and which then cost her in making fifteen pounds, although it was *plain* nett *only*. From the great difference of price, as the same size piece of lace at the very commencement of its manufacture by machinery was sold for about as many shillings, and now for fewer pence, the trade of hand-made nett was completely destroyed, and I know of but two now alive in Devonshire who can make it. The sprigs and edges still continued to be used, being sewn on the machine nett; but little, however, was done in this way, and the great change was the occasion of much suffering throughout the country, as in the endeavour to compete with machinery the prices were brought so low that a pittance sufficient to sustain life could not be obtained by it. In this depressed condition it remained for about twenty years, until Queen Adelaide was pleased to order a Honiton lace dress, made of Honiton sprigs sewn on machine nett. This revived the trade but little, since few followed her example. It still got on slowly, rather improving, but employing comparatively few persons, until our present Most Gracious Majesty ordered her bridal dress to be made of Honiton lace. This dress was made of Honiton sprigs, connected together by a variety of open works, &c., and all worked on the pillow by hand; it was made at Beer, a small village near Seaton, on the coast of Devon. From the date of that order the manufacture revived, until from employing only a scattered few it affords a good livelihood to the majority of the female labouring population in that part of Devon which may be enclosed by a line from Seaton to Exmouth, up the river Exe to Exeter, back the London road to Honiton, thence to Seaton, including many thousand hands. Within the last four years the demand has been enormous, and at one time so far exceeded the supply that the quality of the work for the time materially suffered. So careless and indifferent are the great majority of 'hands' as to the beauty of their work, that I am invariably obliged to have any piece of work that I cannot give out a fac-simile to copy from, made in my own house, where I can hourly superintend the manner in which it is worked; in fact, during the time I was employed about the flounce engraved I did not leave my work-room at all during working hours. As to the character of the lace-workers, as a body they dislike regular work. I do not mean to say they are not industrious, but they have a great dislike to working anywhere where regular attendance at certain hours is required, preferring to work at home by the piece, so that they can begin or leave work as they please; and they are generally fond of dress, and careless of the future. For the last four years at least the earnings of an average lace-maker who worked a fair ten hours per day are above the wages of a farm-labourer, 7*s.*; really good hands get much more. As to their education, they can generally read and write; but, unfortunately, even in those villages which may be considered dependent on the lace-trade, no attempt is made to educate, or in any way promote, any taste useful in the manufacture. To avoid some of the evils, and implant a better taste among my own hands, I formed a school; but having completely failed in inducing the grown-up work people to improve, I was obliged to commence again about two years since with children from about twelve to fourteen years of age. Of course it will yet take some time to develope itself fully; but the progress they have made satisfies me that a little knowledge of drawing, and more regular habits of work being drilled into the workers, will very materially improve the kind of work they produce. There is not a professed lace-designer in Devonshire; my own I have procured until this last year from Paris, since then from Somerset House and Nottingham."



F. M. DELAMOTTE DEL.

V. P. CRY. ASHLEY DIREX.

F. BEDFORD LITH.

PLATE CLV.

CABINET IN EBONY,

DESIGNED BY LIENARD, FOR RINGUET LE PRINCE OF PARIS.

The firm of M. Ringuet le Prince had successfully presented itself to public notice previously to the Great Exhibition of 1851, their efforts having been honourably rewarded in the French Expositions of 1839 and 1844. It has constantly been the practice of this establishment to obtain their designs from the best artists whose services they could enlist; and it is in a great measure owing to their steady adherence to that principle that their productions have obtained a considerable celebrity, and are held in general estimation amongst that public—so critical in matters of style and beauty—the Parisian population.

We have rarely had occasion to notice any piece of furniture more admirably finished, so far as truth of execution is concerned, than the cabinet we now engrave. The perfectly accurate execution of the mitres, the smoothness and clean cutting of the mouldings, and the varieties of texture given to the carving of the foliage, afforded admirable models for imitation, and greatly tended to a successful realization of M. Lienard's graceful design. The last-named gentleman, to whose talent is due not only the general design for this cabinet, but the execution of its small bas-reliefs, is one among the most distinguished of the decorative artists of Paris. The beautiful series of drawings displayed by him in the Great Exhibition demonstrated his originality as a draftsman; whilst his extraordinary specimens of minute carving in wood, representing subjects from the chase, afforded evidence that his executive ability was no less than that which he has long manifested as a designer.

We cannot better illustrate the subject of our present plate than by gathering from the great Government work on the Statistics of Industry in France a few notices on that branch, of which it presents so favourable a specimen; and which has not only constituted an important part of the export trade of Paris for many years past, but has acquired, through the skill of the workmen of the Faubourg St. Antoine, a world-wide reputation.

The most valuable kinds of wood are employed for cabinet-making, either solid or veneered, whilst walnut and other commoner descriptions form the material of what is termed furniture joinery. So great, however, is the connexion between the two, that they are commonly spoken of as cabinet-making, and are, therefore, treated under this general head; the several trades of veneer-cutters, inlayers, carvers, turners, &c. are employed by the cabinet-maker in preparing the different portions of his articles, the fitting together of which belongs to the cabinet-makers. The number of master cabinet-makers in Paris amounts to 1915, of whom 178 employ more than 10 workmen; 844 employ from 2 to 10 workmen; 448 employ 1 only; 445 work single-handed. The value of the business in 1847 is said to have amounted to 27,982,950 francs, and the aggregate number of workmen engaged to about 8559: 6386 working by the piece; 2173 working by the day; 13 working in other ways. Their daily wages were received in the following division:—162 received above 5 francs; 8390 receive between 3 and 5 francs; 7 receive below 2 francs, these last being men in distress. The maximum pay was 10 francs; the minimum, 1·25 franc per day. The larger salaries were received by the superior trades, such as carvers, decorators, &c. To this list should be added 340 boys and 90 women and girls; of the latter, 64 receive wages, 36 by the piece, 28 by the day; their maximum pay 4 francs, and their minimum 1·25, the mean rate being 2 francs. These females are mostly varnishers.

The eighth arrondissement of Paris appears to contain the greater number of the master cabinet-makers, who there, to the number of 1093, manufacture mostly for the supply of the retail furniture-sellers; the other arrondissements contain the remainder.

This trade suffered more than others in the unfortunate troubles of 1848. The value of the business fell then from 27,982,950 francs to 6,436,067, a reduction of 77 per cent; and amongst the workmen, out of the 9046, 7014 were discharged in the months of March, April, May, and June, or 78 per cent. The greatest sufferers were the minor masters, and those working on their own account. Not only was the trade interrupted, but a glut of the more ordinary articles of furniture was caused by the attempts of those thrown out of work to produce at their own risk; in consequence of these causes, prices fell 25 per cent.

One of the particular characteristics of the cabinet-makers is the tendency that exists to become makers on their own account. As soon as they have amassed a small sum, or, being out of work, have got a credit with some wood-merchant, they commence working this capital in manufacturing furniture for their own sale; but not having any place where the public can inspect their goods, nor any connexion through which a sale can be effected, they are obliged, so as to pay their expenses and the debts they have contracted, to get rid of their stock by means of hawking. This consists in carrying about the article to be sold, either on the back or on trucks, and offering it to the passers-by or to the furniture-shops. Thus, loaded with a secrétaire, table, chest of drawers, or other article which they have made, the cabinet-makers come in the morning from the Faubourg Saint Antoine, directing their steps towards the Temple or the Rue de Cléry. Often do they wander about till the evening, selling nothing; then, fatigued with carrying about from early morning a considerable weight, obliged to return home, and afraid of not gaining the money often so necessary for existence, and also for paying for the material purchased on credit, they are obliged to let their goods go for a low price. Often, also, afraid of thus losing three or four days, which they might employ more profitably, they confide the piece of furniture they wish to have hawked to the Commissionaires of the Faubourg Saint Antoine. These Commissionaires are associated together, and if the speculation appears advantageous, they will make it on their own account; if not, they carry it about, seeking the highest bidder.

Many complaints are made of this species of trading. The manufacturers attribute to it the great reduction of price which has taken place in articles of furniture during late years. It would seem to arise from the absence of capital amongst those undertaking the execution of work, particularly amongst the minor masters: obliged to seek quick returns, they sell at any price. As this operation is continually taking place, after these sales a competition is established, to which all the makers have to submit.

This particular cause of lowness of price in cabinet-makers fell with greater force in 1848, during the crisis which weighed upon every trade. A great number of workmen were established on their own account, but being obliged to realise cash at a time when trade was almost annihilated, they lost all their savings. The misery of these smaller masters has been great: the larger number, burdened with wives and children, could hardly sustain them, and only lived by the help of the mairie.

The tendency of the workman to try to establish himself, without reflecting on the difficulty of succeeding without sufficient capital, has led to the formation of workmen's associations. One of them, formed on the 1st of October, 1848, obtained from the Commission charged with the division of three millions voted by the National Assembly for this species of help, a credit of 75,000 francs. Some other associations have also been formed amongst the workmen, having as secure partners the wood-merchants, who by that means sought to work off their stock.

In the condition of the workmen there is much improvement to be desired. Though the greater part are hardworking and respectable, many are very dissipated, and many will not work on the Monday. A great number of the workmen may be called moveable, and are generally composed of Germans. The immigration of Germans during the last twenty years has been considerable, and even forms an important portion of the settled population of France. During some years after 1830 great quarrels have frequently arisen between the French and German cabinet-makers; and the masters, for the sake of quiet, were compelled to compose their workshops entirely of Germans or entirely of French. This rivalry, however, seems in the present day to have calmed down.

POZZI DEL. M DIGBY WYATT DIREXT F BEDFORD LITH.

ENAMELLED VASE BY HUNT AND ROSKELL OF LONDON

LONDON PRINTED AND PUBLISHED MARCH 15TH 1853 BY DAY & SON LITHOGRAPHERS TO THE QUEEN

PLATE CLVI.

ENAMELLED VASE,

BY HUNT AND ROSKELL OF LONDON.

We have already, in our notices of Plates XXVII. and CXVII., had occasion to notice the beauty of Messrs. Hunt and Roskell's execution of silversmiths' work in repoussé; and in the object which we now engrave we have an evidence of the skill with which, by means of enamel, they have succeeded in adding the beauty of colour to their otherwise excellent mechanical execution.

The cover of this rich vase is capable of being removed, so as to convert the whole into a receptacle for flowers. The group on its summit represents Zephyr and Flora; on the upper part are the heads of Bacchus, Ariadne, and Pomona; on the handles are Cupids and festoons of fruits; and the four medallions around the body of the vase represent the Seasons: the whole of the ornaments being thus designed in graceful allusion to the purposes of the object.

It is much to be regretted that, until lately, but few efforts have been made in England by gold and silversmiths to enrich their works, by reviving the extinct, or rather dormant processes of the enameller's art. We have already offered several notices of the manipulative processes anciently employed in this art, and we purpose, on the present occasion, to complete the series, by tracing the developement of the later French School, and the progress which has been made generally in the art in comparatively modern times.

About the end of the fourteenth century, the artists of Limoges found not only that their productions had entirely gone out of fashion, but that almost every goldsmith either imported the translucid enamels from Italy, or executed them himself with more or less skill, according to his talents. In this state of things, instead of attempting to enter into such a universal competition, they invented a new manufacture of their own, the processes of which belonged solely to the enameller, and enabled him to dispense entirely with the burin of the goldsmith. The first attempts were exceedingly rude, and very few of them remain for our inspection; but that the art progressed with slow and feeble steps is evident from the fact, that it is not until the middle of the fifteenth century that the specimens are to be found in any quantity, or possessing any degree of merit. The process was this:—The design was traced with a sharp point upon an unpolished plate of copper, which was then covered with a thin coat of transparent enamel. The artist, after going over his tracing with a thick black line, filled in the intervals with the various colours, which are, for the most part, transparent,—the black lines performing the office of the gold strips of the cloissonné work. The carnations presented the greatest difficulty, and were first of all covered all over with the black colour, and the high lights and half-tints were then modelled upon that with an opaque white, which occasionally received a few touches of light transparent red. The last operation was to apply the gilding, and to affix the imitations of precious stones,—almost the last trace of the Byzantine school, which had formerly exercised so much influence in Aquitaine.

The appearance of the finished work was very similar to that of a large and coarse translucid enamel; a resemblance not unlikely to have been intentional, more especially as specimens of the latter were never made of any considerable size, and were therefore unfit to supply the place of ivory in the construction of those small triptychs which were so necessary an appendage to the chambers and oratories of the rich

in the middle ages. Accordingly we find nearly all the early painted enamels are either in the form of triptychs or diptychs, or have originally formed parts of them; and a great number preserve their original brass frames, and are supposed by antiquaries to have been produced in the *atelier* of Monvearni, as the name or initials of that master are generally found upon them. As to the other artists, they followed, unfortunately, the but too common practice of most of the workmen of the middle ages, and, with the exceptions of Monvearni and P. E. Nicholat, their names are buried in oblivion.

At the commencement of the sixteenth century the Renaissance had made great progress, and among other changes a great taste for paintings in "camaieu," or "grisaille," had sprung up. The *ateliers* of Limoges at once adopted the new fashion, and what may be called the second series of painted enamels was the result. The process was very nearly the same as that employed with regard to the carnations of the earlier specimens, and consisted in firstly covering the whole plate of copper over with a black enamel, and then modelling the lights and half-tints with opaque white; those parts requiring to be coloured, such as the faces and the foliage, receiving thin glazes of their appropriate tints—touches of gold are almost always used to complete the picture, and occasionally, when more than ordinary brilliancy was wanted, a thin gold or silver leaf, called a "paillon," was applied upon the black ground, and the glaze afterwards superposed.

All these processes are to be seen in the two pictures of Francis I. and Henry II., executed by Leonard Limousin for the decoration of the Sainte Chapelle, but which have now been removed to the Museum of the Louvre. Limoges, indeed, owed no small debt of gratitude to the former monarchs, who not only established a manufactory in the town, but made its director, Leonard, "Peintre, émailleur, valet de chambre du roi," giving him at the same time the appellation of "le Limousin," to distinguish him from the other and still more famous Leonardo da Vinci; and indeed the Limousin was no mean artist, whether we regard his copies of the early German and Italian masters, or the original portraits of the more celebrated of his contemporaries, such as those of the Duke of Guise, the Constable Montmorency, Catherine de Medicis, and many others,—executed, we must remember, in the most difficult material which has ever as yet been employed for the purposes of art. The works of Leonard extend from 1532 to 1574, and contemporaneously with him flourished a large school of artist-enamellers, many of whose works quite equalled, if they did not surpass, his own. Among them we may mention Pierre Raymond, and the families of the Penicauds and the Courteys, Jean and Susanna Court, and M. D. Pape. The eldest of the family of the Courteys, Pierre, was not only a good artist, but has the reputation of having made the largest-sized enamels which have ever been executed (nine of these are preserved in the Museum of the Hôtel de Cluny; the other three, M. Labarte informs us, are in England, but he does not mention where) for decorating the façade of the Château de Madrid, upon which building large sums were lavished by Francis I. and Henry II. We should observe, that this last phase of Limoges enamelling was not confined, like its predecessor, to sacred subjects, but, on the contrary, the most distinguished artists did not disdain to ornament vases, caskets, basins, ewers, cups, salvers, and a variety of other articles of every-day life, which usually derive their decoration from the silversmith. The material of these was simply thin copper, which was afterwards entirely covered with the black enamel, and then decorated with medallions, &c. in the opaque white. At the commencement of the new manufacture the subjects of most of the enamels were furnished from the prints of the German artists, such as Martin Schoën, Israel van Mecken, &c. These were afterwards supplanted by those of Marc' Antonio Raimondi and other Italians, which in their turn gave way about the middle of the sixteenth century to the works of Virgilius Solis, Theodore de Bry, Etienne de l'Aulne, and others of the *petits-maîtres*.

The production of the painted enamels was carried on with great activity at Limoges during the whole of the fifteenth, sixteenth, seventeenth centuries, and far into the eighteenth, when it finally expired. The last artists were the families of the Nouailhers and Laudins, whose best works are remarkable for the absence of the paillons, a somewhat undecided style of drawing, and, finally, a great use of the brush in stippling. Many of the more common articles manufactured in the eighteenth century are exceedingly carelessly executed, and we can scarcely wonder that they were discarded in favour of the beautiful porcelain which about this time was first made in considerable quantities in Europe.

P H DELAMOTTE, DEL.

W DIGBY WYATT DIRECT

F BEDFORD, LITH

IVORY THRONE AND FOOTSTOOL, PRESENTED TO HER MAJESTY THE QUEEN,
BY HIS HIGHNESS THE RAJAH OF TRAVENCORE.

LONDON PRINTED AND PUBLISHED MARCH 15TH 1858 BY DAY & SON LITHOGRAPHERS TO THE QUEEN.

PLATE CLVII.

IVORY THRONE AND FOOTSTOOL,

PRESENTED TO HER MAJESTY THE QUEEN BY HIS HIGHNESS THE RAJAH OF TRAVANCORE.

This admirable specimen of Oriental art is no less remarkable for the skill displayed in its design and execution, than for the intrinsic beauty and value of the material employed; which has, indeed, rarely been devoted to a purpose so important and magnificent. In the Great Exhibition of All Nations this exquisite production could not fail to obtain the notice and admiration which it so highly merited; and as the fidelity of our engraving leaves us nothing to say upon the characteristic merits of the object represented, we shall at once proceed with the historical sketch of the commerce of India, which, in our notices of Plates CXL. and CXLIX. was brought down to the year 1600, when the British East India Company was originally established.

The charter under which this important company was first incorporated granted them the exclusive English trade for a period of fifteen years. Their first expedition of five ships sailed in 1601, and returned with valuable merchandise in two years, after making important negociations with the local rulers, and capturing a Portuguese carrack. As early as the year 1608, Dacca, the principal seat of the cotton manufacture of India, was made the capital of Bengal. In 1612, an English factory was established at Surat, in Western India, by permission of the Mogul court of Delhi; and through the competition of European nations to monopolise the Eastern trade, this and other factories subsequently became, in fact as well as name, Forts for the promotion of that object, and for the acquisition of territorial dominion.

Previously to the establishment of the English Company the exportation of bullion for the purchase of foreign produce had been forbidden by the legislature. The Company, however, by their charter, were allowed that privilege to the extent of 30,000*l.* annually; and serious objections arose to the exercise of this exclusive right. Mr. Mun, however, a Director of the Company, replied to them with much ability, and in the year 1663 the prohibitory statutes were entirely repealed. The same gentleman incontestibly refuted the arguments which had been urged against the new route by the Cape of Good Hope, by a tabular statement of the cost of transit, as compared with the route by Syria or Egypt; showing also that in 1620 the imports of the English Company, which cost only 356,228*l.*, had produced in this country 1,914,600*l.*

We have not space to advert particularly to the circumstances which led to the decline of the Portuguese influence in India, and to the extension of that of the Dutch; who, by their vigorous, though somewhat unscrupulous exertions, succeeded in establishing their own supremacy in the East, to the great injury of English commerce. The British Company were not, however, altogether inactive. In 1640, Fort St. George was erected; in 1645, the important factory at Hoogly was established; and in 1658, Madras was constituted a presidency.

Passing over the war with Holland, and the compensation obtained from that country in 1654, as rather of general than commercial interest, we may observe that Charles I. granted a charter to a rival company; but the two establishments were united in the year 1649, and in 1657 Cromwell renewed the charter, imposing certain restrictions upon a private trade in which some spirited adventurers had embarked. King Charles II., in 1661, conferred upon the Company the power of making peace and war, of establishing

colonies, and of exercising civil and criminal jurisdiction in their settlements: but these and similar privileges failed to check the efforts of private competition.

About this period (viz. in 1666), Tavernier visited India; and he has left us an interesting and often-quoted narrative of his own proceedings, and of the arts and manufactures of the country. His description of the court of the Great Mogul at Delhi is full of interest; but, as more immediately bearing on our subject, we may cite some of his observations on the muslins of Dacca, where a factory had then been erected, subordinate to that of Hoogly. He describes these fabrics as being "so thin and light as scarcely to be felt in the hand; for they will spin the thread so fine that the eye can hardly discern it, or, at least, it seems to be but a cobweb." Of the *jhuna*, one of the finest of these fabrics, he observes, that "it is a sort of calicut, which is so thin that, when a man puts it on, his skin shall appear through it as if he were naked. The merchants are not permitted to transport it, for the governor sends it all to the seraglio of the Great Mogul and to the principal lords of the court. Of this the sultanesses and the great noblemens' wives make them garments in the hot weather, and the king and the lords take great pleasure to behold them dance in these garments." He further states, that the Persian ambassador, on his return home from India, carried with him "a cocoa-nut shell, about the size of an ostrich egg, studded with pearls, and, on opening it, it was found to contain a turban of Indian muslin 60 cubits long."

Anticipating our general narrative, and adopting the valuable authority of Mr. Taylor, we may here observe, in reference to Dacca, that in the latter part of the seventeenth century that city was the great emporium of eastern India. During the Mogul dynasty, which terminated in 1764, the *mulmul khas* and other choicest fabrics of this locality were, as Tavernier implies, exclusively reserved for the royal wardrobe; but, subsequently, the cotton goods of Dacca were so largely exported that the value of the English traffic in them in 1678 was 160,000*l.* So rapidly did this trade increase, that about the year 1700 it was thought necessary to protect the rising cotton manufacture in this country by a duty of 15 per cent upon Indian muslins; which, nevertheless, continued to be in great demand in England. One of the charges of Edmund Burke against the East India Company was, that they advanced money to the Dacca weavers for more work than they could perform, so as to secure a monopoly of their services, and to raise the price of the goods; and it is clear that the system was defective from the fact, that in the year 1787, when, in consequence of Burke's complaints, a commercial resident had been appointed, the Dacca trade amounted to the unprecedented sum of 1,562,500*l.* The gradual competition with English cotton, however, towards the close of the last century, led to a rapid decline in the trade of Dacca; and although the excellence of its productions is now as great as ever, local manufacture has continued to decrease, until the population of the town, which in 1800 amounted to 200,000, was reduced, in 1838, to 68,000. The commercial residency was abolished, and the factory closed in 1817.*

The general commerce of England with the East was promoted, in the year 1668, by the Company's acquisition of the island of Bombay, and by their first extensive importation of tea in the same year, about which time the charter was again renewed. About 1690 the Company were successful (though in litigation only) against the private traders, who had long interfered with their monopoly. Sir Josiah Child, the managing director in England, first propounded a magnificent scheme for the formation of a great territorial empire in India; but an expedition with that object, in 1686, was unsuccessful. In 1692 the Bengal agency was transferred from Hoogly to Calcutta, and in 1693 a fresh charter was granted. Soon afterwards a rival company was formed, and a competition arose as to the terms of a loan to be granted to the Government. A compromise between the competitors ensued, and they were united by authority of Parliament in 1702, under the title of "The United Company of Merchants of England trading to the East Indies." Although the commercial benefits of the Company were open to much doubt and opposition, they obtained further charters in 1730 and 1743, and about a century ago embarked, under Clive, in that successful conflict with France for supremacy which added so largely to their territories. The history of the Company from this time till the year 1814 is one of mismanagement, of opposition, and of political details, which do not fall within the scope of the present work. We may merely state, that on the further renewal of the charter in 1793 private individuals were allowed to trade to India in the Company's ships; and when in 1814 the commerce with the East was virtually thrown open, it was attended with so much success, that in a very short time it amounted to three times its former value. The last extension of the charter, from 1834 to 1854, finally terminated the commercial character of the Company.

* Taylor's "Account of the Cotton Manufacture of Dacca, in Bengal." 8vo. 1852.

P. H. DELAMOTTE DEL.

M. DIGBY WYATT, DIREXT.

F. BEDFORD, LITH.

BEDSTEAD IN ZEBRA-WOOD BY CARL LEISTLER & SON OF VIENNA.

LONDON. PRINTED AND PUBLISHED MARCH 15TH 1853 BY DAY & SON LITHOGRAPHERS TO THE QUEEN.

PLATE CLVIII.

BEDSTEAD IN ZEBRA-WOOD,

BY CARL LEISTLER AND SON OF VIENNA.

The artist, by whom the entire series of sumptuous objects displayed by Messrs. Leistler was designed, is a native of Ticino, in Italy, a locality already remarkable for having given birth to his uncle, the celebrated ornamentist Giocondi Albertolli, to whose refined taste, as a draftsman, the modern Italians are mainly indebted for the delicacy with which the acanthus and their general foliage is drawn, and the care with which it is academically studied. From an early age M. Bernardo di Bernardis was reared to tread in the footsteps of his uncle, and was sent to study his profession at Milan and Rome. On completing his education in the year 1840, he was induced to visit Vienna, where, in partnership with his friend and fellow-townsman, Antonio Martinelli, he established himself as an architect. These gentlemen conjointly undertook and carried out successfully many important works; and when Messrs. Leistler determined to produce for the Great Exhibition some choice specimens of their capabilities as manufacturers, regardless of expense, M. di Bernardis was applied to to give the general designs for the furniture contributed by them, and to superintend the carrying out of its details.

Although scarcely equal in perfect execution to the best of the articles produced either in England or France, Messrs. Leistler's furniture displayed a great facility and command of the ordinary resources of cabinet-makers' work. The boldness with which the most elaborate ornaments have been swept, the fineness of the joints at the fittings, the sharpness of the arrises, and the general truth of the work, left little to be desired; and although the design appeared somewhat florid, it yet evinced great knowledge and facility on the part of its designer. In some of the criticisms which have appeared in reference to the character of the design of the object now engraved, scarcely sufficient allowance, as we conceive, has been made for the intensely aristocratic associations connected in the minds of the Austrians with all that appertains to nobility and the demands of the higher classes for objects of the most magnificent description.* The design of this object has been judged by the rules which would apply to an ordinary four-post bedstead; whereas it should be remembered that such a bed is essentially a *lit de parade*, and far more constructed for show than for utility. The state bedroom of a German princely house forms, almost invariably, one of the suite of show-rooms, and is rarely tenanted by the proprietor. Hence an amount of license might be claimed for the designer of this work, whose object was rather to convey the idea of the sumptuous profusion of wealth in connexion with the supply of the ordinary wants of life than to construct an actual, useful, working bed.

It is singular to remark how little the spirit of the classical revival, which was so vehemently indulged in in France, has at any time seized the imagination of the Austrian artists. The impression conveyed by an inspection of the principal palaces of Vienna, and of their furniture, recalls to the mind of the visitor rather the extravagances and caprices of Bernini and Borromini than either the rococo of Louis XIV. and XV., or the severity of the age of the first French Republic,—a period in which, as M. Dupin remarks, "by the same rule

* One of the most lively remarks of this nature (even more piquant than the observations of Mr. Redgrave, in his Report on the Fine Arts of the Exhibition,) was made in the hearing of the author by a Frenchman, who observed, "Que c'était un lit dans lequel on ne pourrait même bailler sans casser un Cupidon."

which caused Greek and Roman names to be given to the citizens to replace those they had received in baptism, it was decreed that the wives of Cassius and Brutus, of Aristides and Themistocles, should attire themselves like Aspasias, and dress their hair à la Titus. When the children of Mars tried the costume of the Roman soldier, the furniture of ancient Latium and Greece was no less necessary for the citizens, Cato, Cincinnatus, and Phocion. Then it was that attempts were made to imitate the forms of the furniture and interiors of Herculaneum and Pompeii; to advertise his skill in the adaptation of which one of the most celebrated upholsterers of Paris inscribed over his shop a statement that there were made the most ancient goods, in the newest style." It is no less singular to observe how little the Viennese appear to have been affected by the impulse given to Prussian art by Schinkel, or the various phases assumed by the art of Munich under the influence of Von Klenze, Gaertner, or Ziebland. If the term "style" can be applied at all to the peculiar forms of the articles manufactured by Messrs. Leistler, we should feel tempted to designate it as a Frenchified version of the Italian style of the beginning of the seventeenth century.

Although manufactories approaching in importance to those of Messrs. Leistler exist in some few of the principal towns of the Austrian empire,— such as Prague, Budweis, Plass, Dobrzisch, and also at Dernes in Hungary, — by far the greater portion of all furniture involving any amount of artistic display is made in the capital. It may be imagined, therefore, how large and important are the transactions conducted by Messrs. Leistler. Highly patronised by the Court and the principal nobles, those gentlemen have long been engaged in the production of all that is most rich and elaborate. Their greatest work has, however, been the entire fitting up of the Leichtenstein Palace, which was built by Mr. Desvignes, an English architect, and which contains a suite of rooms which, for gorgeous decoration, can scarcely be rivalled in any of the other capitals of Europe.

In addition to the object engraved, with its immediate accompaniments, the series contributed to the Exhibition by Messrs. Leistler comprised the entire fittings of four rooms, namely, a dining-room, a library, a drawing-room, and an ante-room. In the dining-room the most important object was a table in zebra-wood, sufficiently large to accommodate forty persons, and executed in the richest and most florid style. In the library was displayed a Gothic book-case, carved in oak, presented to her Majesty the Queen by the Emperor of Austria; and the series, indeed, embraced all the principal appendages of a princely mansion, even to the floors, which were of beautiful parquetry. It is due to M. di Bernardis to add, that the bedstead which forms the subject of our Plate was the most appropriate and successful of these works, and formed a feature that will be long remembered by the myriads who visited the Exhibition of All Nations in 1851.


DONATED BY
THE LARRY ZIM
WORLD'S • FAIR • COLLECTION